THE

FARMER'S MAGAZINE:

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(No. LXIV.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on the Distillery Laws of the United Kingdom.

SIR,

THERE is no branch connected with the political economy of the United Kingdom that has occasioned more parliamentary discussion than Distillation; and to the Revenue and the Agriculturist, there are few subjects of greater importance. Annually to the Revenue, a sum amounting to more than five* millions Sterling has been afforded, and a market provided to the Agriculturist for nearly one million of quarters of barley and oats. Thus the State and the growers of corn have not only been benefited, but by turning this quantity of produce (which, without the distilleries, would not have existed) to human food, in years of scarcity, the public at large derived material advantage, and the evils arising from bad seasons have been several times considerably lessened.

* By last Finance Report, from 5th January 1814 to 5th January 1815, the distillery duty was,

From England,	L. 2,826,986	13	0½
Ireland, -	1,575,810	5	10½
Scotland,	639,998	14	3¾
	L. 5,042,795	13	3

Laws for regulating the making of spirits, and for levying duties from distillation, have, year after year, received the sanction of Parliament; yet, after all, at the close of last Session, the business was left in a more unsettled and less satisfactory state than at any former period. This disorder has arisen principally from conflicting interests, and the claims made by England, Ireland, and Scotland respectively, for protection in the transmission of spirits from one part of the kingdom to another. That these claims have frequently, and on all sides, been overrated by those interested, is a fact not to be denied; and it is equally true, that in consequence of erroneous or incorrect statements, the patience of public men has been so often abused, that they are both unwilling and afraid to enter upon the investigation of this national question.

The intention of this article is, therefore, to attempt to divest the discussion of the subject of that mystery in which it has unnecessarily been involved. And,

1*st*, To give a short description of the regulations and duties to which distillers are subject in England, Ireland, and Scotland, respectively, when making spirits for home consumption.

2*d*, To state the regulations and duties to which distillers in the three countries are liable, when working for exportation.

3*d*, Point out the inequalities in the present method of regulating the intercourse in spirits. And,

4*th*, Offer some hints for regulating the distillation of spirits for home consumption, and suggest a plan for regulating the intercourse in spirits betwixt England, Ireland, and Scotland, according to the respective articles of Union betwixt England and Scotland, and betwixt Great Britain and Ireland, and according to a fair principle of reciprocity.

First, Distillation in England has always been carried on with large stills, and the duty has uniformly arisen from a charge upon the wort or wash brewed; a given quantity of wort being required to produce a certain proportion of spirits. At present, the duty upon the gallon of wort is one shilling and ninepence; and for every hundred gallons of such wort the English distillers are allowed to sell or send out nineteen gallons of spirits, at the strength of one to ten over hydrometer proof; the duty upon each gallon of such spirits being thereby nine shillings and twopence halfpenny. Besides this duty upon wort, there is also a duty of 34s. 8d. per quarter on malt, which is held to attach an additional charge of eightpence on the gallon of spirits, making the total duty thereon nine shillings and tenpence halfpenny. When the spirits are made, they go from the maker to the rectifier, where they are redistilled, and compounded into gin,

brandy, &c. without payment of any farther duty; and, under these characters, are vended and consumed.

In Ireland, stills of every size, not under 44 gallons, may be licensed. The construction of the still is fixed by law; and the diameter must be in proportion to the altitude as three to one. A certain quantity of work is to be performed by the stills; and ten gallons of spirits must be produced from every hundred gallons of wort, which wort must be distilled within six days after it is brewed. The duty is charged upon the spirits at the rate of 5s. 6d. per gallon, one to four over hydrometer proof; and the malt-duty is computed at 6½d. per gallon more, making the total duty 6s. 0½d. per gallon *one to four*, or nearly 5s. 2¾d. per gallon *one to ten over* hydrometer proof. There are some rectifiers in Ireland; but, in general, the spirits are consumed in their original state, as whisky.

In July 1814, the English system of regulations was extended to Scotland; so that the manufacturing of spirits is conducted upon the same principle throughout Britain. The duty upon the wort is 1s. per gallon, (100 gallons of wort being calculated to produce 19 gallons of spirits); and a duty of 2s. 10d. is likewise chargeable upon every gallon of spirits, which makes the tax 8s. 1¼d. on the gallon of spirits at the strength of one to ten over proof. The malt-duty (29s. 8d. per quarter), is stated at 7d., so that the total duty amounts to 8s. 8¼d. per gallon.

Until within these few months, there have been no rectifiers in Scotland for upwards of twenty years; and, at present, only one or two are licensed.

Second, The distillation of spirits in Scotland for exportation to England since 1788, has been carried on in distilleries exclusively entered for that purpose, and precisely according to the English practice. The spirits, when made, are warehoused, without payment of duty; and, when the maker finds it convenient to export them, they are shipped; and, upon being landed in England, a duty of 9s. 5½d. is paid, per gallon, at the strength of one to ten over hydrometer proof.

There has been very little exportation of spirits from England to Scotland; but the statutes in force for regulating this trade, are the same as those enacted for regulating the trade betwixt Scotland and England. The duty, upon arrival from England in Scotland, is 8s. 3½d. per gallon, one to ten over proof. There is no drawback or duty for malt in the regulations betwixt England and Scotland; the export distillers, in either country, having the use of malt at the duty payable where they reside; which is considered to be one penny per gallon in favour of Scotland.

In Ireland, the distillers can make spirits in one work, and at the same time, for home consumption, according to the practice of working stated, and for exportation. They have permission to warehouse their spirits without payment of duty—to keep them so warehoused for four months—to export at the strength of one to four over proof—and to draw back sixpence halfpenny in name of malt-duty, when their spirits are shipped.

Upon arrival in England, Irish spirits pay a duty of nine shillings and tenpence halfpenny; and, when imported into Scotland, they pay a duty of 8s. 8d. per gallon, computed at the strength of one to ten over proof.

Third, The inequalities in regulating the intercourse in spirits, are—

1. In sending spirits from Scotland to England 9s. 5½d. of duty is chargeable upon the gallon, whereas the English home duty is only 9s. 2½d.; and the Irish import duty is calculated upon the same principle, 9s. 2½d. being the spirit, and 8d. the English malt-duty, making 9s. 10½d. on the gallon of Irish whisky brought to England. Thus, deducting one penny per gallon of preference on malt-duty, the Scotch distillers export to England at two pence per gallon higher than the Irish, and pay two pence more than the English duty. It must, however, be noticed, that the export distillers in Britain have the privilege of warehousing their spirits without payment of duty, and of sending them out at pleasure, which is both an accommodation and a saving of interest; whilst in Ireland, spirits can only be warehoused, without payment of duty, for four months.

2. In Ireland, distillers are permitted to make spirits in one work, and to apply any part of the produce for home consumption, for England or Scotland, or for foreign parts, under a system of regulations which allows the production of a finer spirit (and at a cheaper rate) than can be made under the English or Scotch laws;* whilst in Britain, distillation for home consumption, and for exportation to Ireland, and to foreign parts, must be carried on in separate works, and under a method that does not admit the making of a spirit applicable to the Irish market.

3. The imperfect collection of the revenue in Ireland, and the opportunities of evasion in this respect, afforded by working at the same time for home consumption and for exportation, render equality in the intercourse in spirits with that country impossible.

In 1807, an investigation was entered into before Commis-

* One instance of this is, that ten gallons of wort in Ireland is only required to produce one gallon of spirits; whereas in Britain, five gallons and a quarter of wort must produce a gallon of spirits.

sioners, respecting fees and gratuities of public offices in Ireland; and these Commissioners reported, (page 153.) 'When 'we advert to the depositions of several eminent distillers,—one 'acknowledging that he frequently made 5300 gallons of spirits 'in the week, at a time when he was only charged with 2075; 'another, that he usually made between 9000 and 10,000 gallons of spirits weekly, when his charge was but 4970, and that, 'but for some defect in his apparatus, he could have made a 'greater quantity; a third, that he made on an average 6500 'gallons, and sometimes 7000 weekly, when charged with but '3500; and a fourth, that he believes the spirits made privately by distillers in general, were at least equal in quantity to the 'spirits with which they were chargeable; and, when we find 'all the examinations concur in stating, that the distillers every 'where made considerable quantities of private spirits, we probably shall not exaggerate, if we compute the private spirits 'made by licensed distillers to have been more than equal to 'those which *paid duty* and those *exported from the King's warehouses.*' And again, 'This monstrous fraud, we are sorry to remark, could not have been effected but by the collusion 'and connivance of the officers, whose corrupt intercourse with 'the distillers appears to have been general, and almost, without other evidence, is manifested by the enormous amount of 'their fees.' And, in the sixth Report, it is stated, on the subject of malt, page 5th, 'That it would not be easy for the licensed manufacturer to evade the duty, unless he were seconded by the connivance and corruption of the officers employed 'to check and controul them.' And further, in page 18th, 'In 'our report on the Distilleries, we have stated our conviction, 'that the fees received by the officers in most cases exceeded 'those acknowledged to us in their examinations; and, in that 'conviction, we have since been fully confirmed, by the admission of a gauger, who made an unsolicited and voluntary confession of his having received, during fourteen months that he 'was in charge of a distillery in the district of Dublin, upwards 'of 1100*l.*; though, in a previous examination, he had deposed to the receipt of no gratuity, fee, reward, perquisite or 'emolument of any kind or nature whatsoever, other than a sum 'of about seventy-two guineas, and a few gallons of spirits annually. This officer having alleged, as a palliation of his conduct, that he had been instigated thereto by one of his superior officers, in order to defeat our inquiries, by evasion or 'suppression of the truth, we deemed it our duty to examine 'into the transaction; and we regret extremely, that our examination has afforded strong grounds for believing that the charge

'is but too well founded.' In 1809, an inquiry was gone through respecting the intercourse in spirits betwixt Britain and Ireland, before a Committee of the House of Commons; and, after reporting the evidence given upon that occasion, Parliament were so satisfied of the impossibility of regulating the exportation of spirits from Ireland, upon any thing like a footing of equality, that an Act followed, prohibiting the intercourse in spirits betwixt Britain and Ireland; which act was renewed annually until last Session, when the regulations detailed were enacted.

It will be urged, that considerable alteration has taken place in the Irish distillery law, and in the collection of the revenue since 1809. The principal alteration consists in the increase made to the number of times the stills have to be charged.

By 44. Geo. III. cap. 88. (1806), a still of 750 gallons was required to be run 74 times in the course of four weeks; and by 55. Geo. III. cap. 111, passed this year, a still of 750 gallons has to be run 130 times during the same period. In 1806, therefore, this still had to make nearly 5000 gallons of spirits in four weeks; and at present, 8700 gallons must be produced. Now, according to the Scots license system, repealed in July 1814, a still of 55 gallons was required to make, and actually did make, monthly, more than 8700 gallons of spirits. From this circumstance alone, as well as from the admission of the Irish distillers, it is evident that a much greater quantity of spirits can be made by them than the law requires; and as, generally, the same regulations, and exactly the same system of working, and, it is to be feared, the same practice of collusion betwixt traders and revenue-officers, are in use now, as existed when the proceedings quoted were gone through, there is little reason to doubt, that similar evasions will be again attempted. *

From these circumstances, and others which it would be too tedious to mention, it is evident, that the intercourse in spirits, especially with Ireland, is not regulated according to the articles of Union, nor upon a fair principle of reciprocity; and that there is every reason to believe, under the imperfection stated as existing in the collection of the revenue in Ireland, that the Irish distiller may make such a profit, by applying a part of his spirits to the home market, from the way in which the statutes

* Spirits exported laſt year from Ireland, were ſold in Scotland at a rate which, after paying the import duty of 8s. 8d. per gallon, did not leave much, if any thing, above one ſhilling per gallon, for grain, making, freight, and expenſe of ſelling, the Scotch market having been ſo depreſſed by this importation, and private diſtilling at home.

are evaded, as will enable him to undersell the British distillers in their own markets.

Fourth, The Committee of the House of Commons, already mentioned, gave as their opinion, 'That under the different 'circumstances of the three parts of the United Kingdom, it 'is expedient to leave each its own mode of manufacture, and 'method of collecting the revenue, as far as relates to home 'consumption, liable to such alterations as the Legislature, at 'any future period, may see fit to adopt.'

This opinion was not only agreeable to the evidence then given, but according to every principle of sound policy.

There is no doubt that England, from her wealth, and from the superior quality of her grain, is able to pay a higher duty, and to afford a greater extract than Ireland or Scotland; and that the Lowlands of Scotland are, in the same manner, competent to afford a greater duty and a higher yield than the Highlands of Scotland. *A law, therefore, to regulate distillation for home consumption, should be so constituted as effectually to secure the revenue—to admit the manufacturing of the grain produced—and to allow the production of a spirit acceptable to the taste of the consumers.*

That the regulations established for such a length of time in England, are adequate for all these purposes, there can be little doubt, from no objections having been hitherto stated against them: And, that the system of distillation practised in Ireland is applicable for consuming the produce raised in that country, and producing spirits of a good quality, has been shown by experience, and is evident from the regulations themselves. The case, however, is very different with Scotland, since last year that the English law was extended to her.

Nothing connected with distillation is better known, than that a very strong wort can be produced only from the finest quality of grain;—that the production of such a wort, even from the best grain, is attended with a great waste, and, after it is produced, that a coarse quality of spirit is invariably extracted from it. From the last fact, and from the use of large stills, spirits of a fine quality have never been made in England from grain, notwithstanding the superior quality of the materials employed: Nor is attention to quality there necessary; as the spirits, after being made, are compounded into gin, brandy, &c. and consumed principally by the lower orders. But in Scotland, matters are otherwise. Spirits constitute the general beverage, not only of the lower orders, but also of the middle class of society; and as they are used in their original state, a fine quality must either be made, or legal distilled spirits will not be consumed.

The inferiority of the spirits made last season under the English regulations, to those manufactured formerly, is notorious; and the consequence has been, that illicit distillation has increased in the North, and been extended over the Lowlands to a degree hitherto unknown, and great quantities of Irish spirits have been imported into Scotland. Another evil has arisen from abolishing the modifications tolerated in the Northern districts. Formerly small stills were licensed at low duties, and under regulations adapted to the situation of the district; and the Highland distillers were confined to their own country for grain and a market for their spirits. At the late change, the English system and the Lowland duty were extended over Scotland, with this exception, that stills of 500 gallons might be worked north of the former line; which indulgence has since been extended, by the Board of Excise, to the use of stills of two hundred gallons. The consequence has been, that no legal distilling has gone forward in the interior of the Highlands, excepting either immediately upon the line, or in the neighbourhood of Inverness, upon the coast side. The supply of grain for these Highland distillers, has very generally been drawn from the Lowlands or from England; and nearly the whole spirits accounted for as made, have been exported to the Lowland markets, the quality being obnoxious to the Highlanders; *and of course the whole Northern district of Scotland has been supplied for twelve months past with spirits that have paid no duty.* *

To correct these evils, it is apprehended that a recurrence to the law repealed last year, is only necessary. Previous to that law being adopted in 1785 and 1786, the revenue from distillation in Scotland, after making an allowance for the spirits exported to England, was very small; and, since that period, the manufacturing of spirits has been carried on under this system, in a satisfactory manner to the country: The duties have been secured by an efficient system of survey, united to a system of license requiring from the stills' contents very nearly the greatest quantity of work that can be performed; and the revenue increased from a mere nominal sum to upwards of 700,000*l.* per annum.

To restore a plan for regulating the intercourse in spirits throughout the United Kingdom, is a point that has occasioned

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* To give an idea of the extent to which illicit distillation is carried on in the North, it is only necessary to state, that in Perth collection alone, where about 80,000*l.* of duties are annually paid, it is understood that last year the seizures of whisky, and penalties upon private distillation, amounted to 12,000*l.*

so much investigation, and engrossed the attention of so many eminent men, that it would be dangerous to hazard any new or theoretical plan. This is not intended; but, on the contrary, it is meant to refer to such regulations as experience has already shown to be effectual for this purpose, and to found any farther observations upon the results of the different inquiries instituted, and on a practical knowledge of the subject.

It was formerly mentioned, that distillers in Scotland working for exportation to England, have, since 1788, been restricted to do so in works exclusively entered for that purpose, and have done so precisely under the regulations in force for collecting the duties upon spirits in England; and, in so far as the revenue is concerned, it may be safely asserted, that this trade has been conducted in a proper manner.

During the investigation alluded to in 1809, the Commons' Committee were so much satisfied of this, that they declared, 'that the plan most practicable and convenient, was to confine 'the intercourse in spirits between the different parts of the 'United Kingdom respectively, to spirits made solely for such 'export, in distilleries not working for home consumption at 'the same time, nor for a farther time to be limited.'

Taking therefore the precedent and the opinion quoted, as the basis of this arrangement, and to place the intercourse in spirits upon an exact principle of reciprocity as contracted for by the respective articles of Union,† those distillers intending to work for exportation should enter their works accordingly at a given date for that purpose only, and conform to all the regulations in force in the country into which they are to send their spirits;—that is to say, that distillers in England working for exportation to Ireland, should conform to the enactments in force in Ireland for regulating distillation,—and those working for Scotland, to the regulations in force in Scotland; which, it is hoped, will next season be the former License act. That distillers working in Ireland for exportation to England, conform to the regulations in force in England; and working for Scotland, to the regulations in force in Scotland: That distillers in Scotland, working for exportation to England, continue to conform to the regulations in force in England; and for Ireland to the regulations in force in Ireland. And should distillers in the Highlands wish

† In the articles of Union with Ireland, no distinction was made betwixt England and Scotland for the duty upon Irish spirits, although the duty upon spirits for home consumption in Scotland, at that time, was 2s. 1½d. per gallon less than in England. This, however, was evidently an inadvertency, and no advantage ought to be claimed on account of it.

a participation in the Lowland market, or to export spirits to England or Ireland, they should accordingly conform to the regulations enacted in the country for which they work.

In every instance, the spirits, when made, should be lodged under King's keys, and exported in a given period; and the whole operations ought to be of such extent, as to be worth the attendance of at least two revenue-officers, one of whom to be appointed by the Board of Excise in the country where the spirits are making, and the other by the Board in the country to which the spirits are to be exported.

There is one objection, however, that may perhaps be urged against this arrangement, the waste of coals, from the rapid manner of working under the Scotch license system, and the comparative cost of that article in Scotland and in Ireland. The expense of coal in making a gallon of spirits from grain, one to ten over proof, is nearly twopence halfpenny; and from sugar, twopence and one eighth of a penny, at the rate of 15s. per ton, carriage included; which, on an average, may be taken at 7s. 6d. per ton. Now, supposing the carriage to be doubled to the Irish export distiller, and that the coal shall cost 23s. per ton, this will attach a charge of threepence three farthings upon the gallon of their spirits, or one penny farthing more than the Scotch distillers pay when working for home consumption. But, as a full equivalent for this circumstance, the Irish distiller has an advantage in the purchase of grain. Ireland is an exporting country; consequently the price of corn must be lower there, by the freight and charges of selling, than in the market to which it is exported and sold. If, therefore, the amount of freight and other charges be taken only at three shillings per quarter, that sum will more than counterbalance to Ireland the disadvantage on the article of coal; as a quarter of grain is, at most, held to produce but eighteen gallons of spirits, 1 to 10 over proof.

By adopting this general plan, the long dispute about countervailing the expense of the different modes of working by duties, would be totally avoided; and every part of the United Kingdom would be enabled to manufacture a part of the surplus grain into spirits, agreeable to the taste of the people, and according to the natural advantages they may enjoy; whilst the revenue would unquestionably be better secured than it has ever hitherto been in the transmission of spirits throughout the empire. Besides those advantages resulting from the adoption of this plan, the trade of distilling would be placed upon a steady and a permanent basis, and a regular demand would thereby be furnished for barley and oats.

At a time like the present, when the occupiers of land are suffering so severely from the low value of their produce, and when a heavy, though necessary, taxation, is pressing severely upon the public at large, the right arrangement of this subject is of the highest importance;—of importance to the agriculturist, as any advantage in the intercourse of spirits betwixt England, Ireland, and Scotland respectively, operates as a bounty upon corn to the country receiving such advantage;—and of importance to the public at large, to the extent in which the proper collection of revenue is concerned: For, in so far as the system adopted is inefficient in this respect, recourse must be had to other taxes to make up the deficiency.

As, therefore, the acts for regulating the intercourse in spirits between Great Britain and Ireland, and for regulating distillation in Scotland for home consumption, are expected to come under the consideration of Parliament at an early period of the ensuing Session, it is earnestly to be wished, that Members of Parliament, as well as landholders and others interested, would use their utmost efforts in having these matters adjusted in a permanent and satisfactory manner, and according to a fair principle of reciprocity, without giving the slightest advantage to any one part of the United Kingdom over another.

I am, &c. A.

October, 1815.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

A simple Invention for Hummelling Barley.

SIR,

SINCE the introduction of the thrashing machine into Ayrshire, which is now on almost every farm having a plough, it has been a *desideratum* of much interest to have such improvement made on these machines as to cause them *hummel* barley, or more particularly bear or big, sufficiently, so as to save the trouble of thrashing or (*vulgo*) *fattering* by the flail, after having gone through the mill. That is now completely accomplished by George M'Cartney, agricultural wright near Cumnock. The invention is extremely simple, and the cost only 3s. It is a bit of notched stick or spar, lined on one side with a thin plate of iron, and just the length of the rollers, fixed by a screw-bolt at each end to the inside of the cover of the drum, about the middle of it, so as the edge of said notched stick is about one-eighth of an inch from the arms of the drum as it goes round. Two minutes are sufficient to put it on when

its operation is wanted; which is, when putting through the bear the second time; and it is as easily taken off. It rubs off the awns or spikes to my entire satisfaction; and by putting the grain another time through the mill, it will rub the husk off the ends of the pickle so entirely, that I should not venture to sow it afterwards. As I have not seen this improvement noticed in your Magazine, nor any where else, I think it proper to communicate it to you, for insertion in your next Number, as a useful invention in our way. M'Cartney, too, deserves both praise and profit. Suppose old Meikle had been made Duke of Meiklenburgh, and M'Cartney one of the new Knights of the Bath, would it have degraded the national character?

Ayrshire, October, 1815. AN OLD FARMER.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

An Epitome of the Laws of Scotland, for protecting Woods, Trees, and Enclosures.

By MR STEELE, W. S.

18. *June*, 1815.

As the law of Scotland, in regard to protecting woods, trees, and enclosures, is not perhaps generally known, the epitome following, of the statutes and decisions on that subject, may not be unacceptable to some of your readers.

The trees and forests, with which, we know from history, Scotland was once covered, having been much wasted, particularly in the southern districts, from various causes; such as, by stagnations of water, forming peat-mosses; by burning in war, especially by the Romans; and by the pasturage of black cattle and sheep, which destroy the young trees; it became very early a matter of the police of Government, to order trees to be planted, and preserved.

Accordingly, in the reign of James the Second of Scotland, 1457, cap. 83, we have the following law—

'*Item*, anent plantation of woodes and hedges, and sawing 'of broome, the Lords thinkis speedefull, that the King charge 'all his freehalders, baith spirituall and temporall, that in mak-'ing of their Whitsundayis set, they statute and ordaine, that 'all their tennentes plant woodes and trees, and make hedges, 'and saw broome, after the faculties of their maillinges, in 'place convenient therefore, under sik paine as law and unlaw 'of the barone or lord sall modifie.'

In 1503, a law was made, that every lord and laird should

make parks with deer, ponds, cunningaries, dovecots, orchards, and hedges; and plant, at least, an acre of wood: And various acts of Parliament were afterwards passed, for further planting of trees, and for preserving them; generally of the most rigorous nature, extending the punishment, for destroying green wood, even to death, for the third offence.

The acts of Parliament that constitute the present law of Scotland for preserving trees and enclosures, seem to me to be these following.

1*st*, By the 39th act of the first Parliament of King James VII., it is ordained, 'that hereafter no person shall cut, break, 'or pull up any tree, or peel the bark off any tree, under the 'pain of 10*l*. Scots for each tree within ten years old, and 20*l*. 'Scots for each tree that is above the said age of ten years; 'and that the havers or users of the timber of any tree that shall 'be so cut, broken, or pulled up, shall be liable to the same pe-'nalty, except he can produce the person from whom he got 'it; and no person shall break down or fill up any ditch, hedge 'or dike, whereby ground is enclosed, and shall not leap, or 'suffer their horse, nolt or sheep, to go over any ditch, hedge 'or dike, under the pain of 10*l*. Scots, *toties quoties*.'

2*d*, By the 11th act of the same Parliament, it is ordained, 'that all heritors, liferenters, tenants, cottars, and other posses-'sors of lands or houses, shall cause herd their horses, nolt, 'sheep, swine and goats, the whole year, as well in winter as 'summer; and in the night-time shall cause keep the same in 'houses, folds or enclosures, so as they may not eat or destroy 'their neighbour's grounds, woods, hedges, or planting; certi-'fying such as shall contraveen, they shall be liable to pay half 'a merk, *toties quoties*, for ilk beast they shall have going on 'their neighbour's ground, by and attour the damage done to 'the grass or planting; and declares that it shall be lawful to 'the heritor or possessor of the ground to detain the said beasts 'until he be paid of the said half merk for ilk beast found upon 'his ground, and of his expenses in keeping the same; and 'this, but prejudice of any former acts of Parliament, made a-'gainst destroyers of planting and enclosures.'

In a question brought before the Court of Session on this statute, decided so lately as 3d July 1799, Loch *contra* Tweedie, it was stated for the pursuer, that a number of sheep belonging to the defender had broke into, and done damage in an enclosure of the pursuer. The defence was, that the statute did not apply to the case, because the defender actually kept two shepherds, and the tresspass was committed on a march fence only. But the Court found, that the act of Parliament did apply to

trespasses of this nature, and subjected the defender in the penalties.

3d, By the 16th act of the first Parliament of King William, 'Our Sovereign Lord, with advice and consent of the estates 'of Parliament, ratifies and approves all former laws and acts 'of Parliament made for planting and enclosing of ground; and, 'for making the same more effectual, statutes and ordains, that 'all tenants and cottars shall preserve and secure all growing 'wood and planting that is upon the ground they possess, that 'none of it shall be cut, broke, or pulled up by the roots, or 'the bark peeled off any tree, and that under the pain, to be 'exacted by their masters allenarly, of ten pounds Scots for 'each tree within ten years old, and twenty pounds Scots for 'each tree that is above the said age of ten years, unless the 'same be done by warrant and order of the said master and 'heritor of the ground: And ordains the tenant to be liable for 'his wife, children, and servants, or any others within his fa-'mily that shall contraveen this present act.'

In a process before the Court of Session, against a farmer, upon this act of Parliament, the act was found to infer a presumption that growing timber cut or destroyed in a tenant's possession, is cut and destroyed by the tenant, unless the tenant will instruct that the same was done by a third party; 24th July 1734, Ferguson *contra* M'Nidder.

The Court of Session also found, that fruit-trees fall under the acts of Parliament for the preservation of planting, 24th July 1743, Robertson *contra* Robertson; and also natural or coppice wood, 18th February 1794, Buchanan *contra* Malcom. Also, that the proprietor of a row of trees adjoining to a mutual wall, was bound to lop their branches in such a manner as that they should not hang over the wall, and so injure the garden of his neighbour, 3d February 1781, Halkerston *contra* Wedderburn.

4th, By act 1. Geo. I. cap. 48, it is enacted, that if any person shall maliciously break down, cut up, pluck up, throw down, or otherwise destroy, deface or spoil, any timber tree, or trees, or any other tree or trees, the person so damaged shall receive satisfaction and recompense from the inhabitants of the parish, town, hamlet, villa or place, (and if such offence be committed in Scotland, the same to be recovered by summary action), unless the party offending shall be convicted within six months from the committing such offence; and any two Justices of the Peace, or other judges, on complaint by any inhabitant of such parish, or by the owner of the trees, or any other, may cause such offender to be apprehended, and, on his conviction,

shall commit him to the house of correction, to be kept to hard labour for three months, and, where there are no houses of correction, he shall be committed to prison for four months, and the offender shall also be publicly whipt by the master of such house of correction, once every month, during said three months; and, where there is no house of correction, such offender shall be whipt by the hangman, once every month during such four months, on the market day, betwixt the hours of eleven and two, &c. And if any person shall set on fire, burn, or cause to be burnt, any wood, underwood, or coppice, such malicious setting on fire is felony, and, if committed in Scotland, the offender shall suffer as a wilful fire-raiser.

5th, By 6. Geo. I. cap. 16., made to explain and amend the last mentioned act, it is ordained, that Whereas divers lewd, lawless, turbulent and disorderly persons, sometimes in an open manner, and at other times, in a clandestine, malicious and private manner, do deface and spoil woods, tops of trees, thorns, quicksets and underwoods, also breaking down and destroying hedges, gates, railing, fences, ditches or other enclosures of such woods, to the great discouragement of all owners, preservers and planters of wood, sometimes in the day-time, and somtimes in the night-time; therefore the proprietor is to have the same recourse and recompense for any of the said offences, as in the former act.

In a process, upon these last mentioned acts, brought into the Court of Session, Nasmyth *contra* the Inhabitants of the Village called Water of Leith, near Edinburgh; the Court found it relevant to make the defenders liable *in solidum*, without relief from the rest of the parish, that the pursuer's tenement lies within, or is a part of the ville or hamlet called the Water of Leith; but found, that, before execution against the persons liable, competent time ought to be allowed for the defenders to meet and stent or assess themselves for making up the pursuer's damages, and for proportioning relief to such as shall be obliged to pay more than their share: And if the pursuer's tenement be not comprehended in the village, in that case also the defenders were found liable *in solidum*, but with relief against the inhabitants of the whole parish.

6th, By act 6. Geo. III. cap. 36., Those who, in the night-time, spoil, destroy, or carry away any timber tree, or pluck up, spoil, destroy, or carry away any root, shrub or plant, of the value of five shillings, growing in a nursery or other enclosed ground, shall be deemed guilty of felony, so as to suffer transportation for seven years, and those assisting them shall be liable to the same punishment.

7th, By 6. George III. cap. 48., Those who deface, damage, destroy, or carry away any timber tree, or any part thereof, and shall be convicted by the oath of one or more credible witnesses, before any one Justice of the Peace, shall, for the first offence, forfeit such sum, not exceeding 20*l.* Sterling, as to the justice shall seem meet, with costs: And, upon non-payment, the offender shall be committed to jail, there to remain till the penalty and charge be paid, but not exceeding twelve months. A second offence shall entitle the Justice to fine the offender, not exceeding 30*l.*, and to commit the offender to prison, until the fine and costs be paid, but not exceeding 18 months. The third offence is declared felony; and the Court, where the crime is tried, shall be empowered to transport the felon for seven years. Those who spoil, destroy, or carry away any root, shrub or plant, from nurseries, or other cultivated land, shall, upon conviction before a Justice of Peace, by the oath of one or more credible witnesses, for the first offence, forfeit a sum not exceeding forty shillings, besides costs of suit. For the second offence, he shall forfeit a sum not exceeding 5*l.* The third offence shall be felony, with power of transportation, as aforesaid, for seven years. Those who shall spoil, damage, or destroy any kind of under wood, poles, sticks of wood, green stubs, or young trees, or carry away the same, or have in their custody any of the above particulars, without giving a satisfactory account how they came by the same, shall, upon conviction, before a Justice of Peace, by the oath of one or more credible witnesses, forfeit, for the first offence, a sum not exceeding forty shillings, together with costs. For the second offence, they shall forfeit a sum not exceeding 5*l.*, with costs. For the third offence, they shall be deemed incorrigible rogues, and be punished accordingly. Where the forfeitures are not paid down upon conviction, the offender may be committed to hard labour for one month, upon the first offence, and to be once whipped: for three months, upon the second offence, and to be thrice whipped. A. S.

P. S. In all cases where the libel is restricted to fines and damages only, the facts may be proved by the oath of the party accused.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Method of Protecting Young Thorn Hedges.

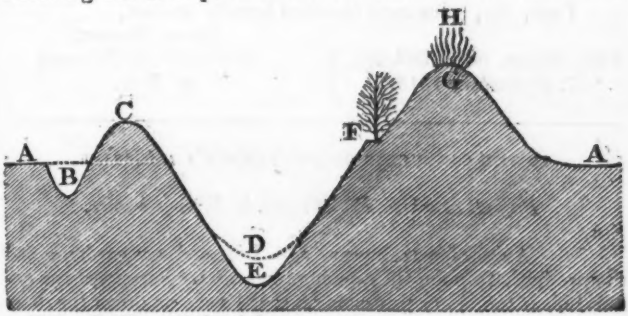
SIR,

SHOULD you consider the following communication worthy of insertion in the Farmer's Magazine, I give it as the result of some experience in the enclosing of land with hedge and ditch.

The expense of protecting young hedges from cattle, by pal-

ing and railing, always appeared to me to be too great, and, at the same time, an unnecessary consumption of wood and nails. It occurred that a more economical protection might be effected, by forming a small earthen dike upon the side of the ditch, opposite the line of thorns, sufficiently high to prevent cattle getting into the ditch. Accordingly, about three years ago, I tried the experiment, and have found it completely to answer my expectation.

That the plan may be more easily understood, I here present a drawing and description of the formation of the ditches.



A A Surface of the field.

B Small ditch 15 inches deep.

C Earthen dike, raised 18 inches above the level of the surface.

D The usual depth of main ditch, but extended 12 inches to E, not only to afford materials for C, but, from its increased depth, to deter cattle from attempting to get near the growing thorns.

E Additional depth (12 inches) of main ditch.

F Thorn-bed, with scarsement or step of four inches, to prevent the soil from falling away from the thorns, in the operation of weeding.

G Top of main earthen dike.

H Dead thorns, or brushwood, commonly used for cocking.

When the hedge, guarded in this manner, has come to maturity, the small ditch may be filled up, also the space betwixt D and E at the bottom of the main ditch, by throwing down C, which will be no longer wanted. Care must be taken to keep the ends of the main ditch close, so that cattle may not enter, and likewise that the temporary, or small ditch, be not allowed to fall into disrepair. The materials for this sort of protection

being always on the ground, it is attended with no expense but the workmanship, which may be done for two shillings per Scots chain; and the want of the use of the land occupied by this small ditch, for the time required, will be much more than compensated by the saving of paling, railing, workmanship and nails. I have also practised with success, in parts where dead thorns or brush for cocking are scarce, the placing of stones across the top of the dike, instead of the usual cocking: Those stones, after having served their purpose, will be useful for drains or dikes where improvements are carrying on.

I am, Sir, your most obedient humble servant,

ARCH. MOORE,
Factor for the Marquis of Bute.

Foley-House, near Rothesay, 27. September, 1815.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Periods at which Fruits ripen in Inverness-shire.

SIR,

ABOUT fourteen years ago I formed my garden; and the produce, in point of ripening, has so far surpassed the general ideas formed of this climate, that I have set down the dates (both last year and this) of the perfection of the wall-fruit. Last year, Moor-park apricots ripened 15th August; and peaches, nectarines and plums, about twelve days afterwards. The trees are planted both on stone and brick walls; and I have observed very little difference between them in regard to forwarding the fruit. This season Moor-park apricots were fully ripe, and in succession, from 8th August; and peaches, nectarines and plums, from the 22d August. The nectarines are of the most approved sorts. The peaches are, the Barrington, Noblesse, Vanguard, Arinthroides, Royal George, and Royal Kensington kinds. The plums, Greengages. Pears and apples came to perfection about the same time. All the fruit above stated were extremely large, fine flavoured, and beautiful. No doubt, several other gardens in this parish are equally early; which will surprise many English readers.

I am, &c. your constant reader,

D.

Muirtown, Parish of Inverness, 12th September, 1815.

N. B. The names of the kinds of peaches are taken from the lists of Messrs Whitley and Bramer of Fulham, who sold the trees.

FOR THE FARMER'S MAGAZINE.

Copy of a Letter from Mr Curwen, of Workington-Hall, to George Dempster Esq. of Dunichen, published with his Permission.

On Burning Sods, and Clay, by Means of Quicklime, without Coals or any other Fuel.

SIR, *Workington-Hall, September 2d*, 1815.

ON my return from Scotland yesterday, I found your favour; and am happy to afford you, as far as is in my power, the information you require, as to the mode of burning surface soil, and clay, by lime.

Mounds of seven yards in length, three and a half in breadth, are kindled with seventy-two Winchester bushels of lime:—First, a layer of dry sods or parings, on which a quantity of lime is spread, mixing sods with it, then a covering of eight inches of sods, on which the other half of the lime is spread, and covered a foot thick; the height of the mound being about a yard.

In twenty-four hours it will take fire. The lime should be immediately from the kiln. It is better to suffer it to ignite itself, than to effect it by the operation of water. When the fire is fairly kindled, fresh sods must be applied. I should recommend obtaining a sufficient body of ashes before any clay was put on the mounds. The fire naturally rises to the top. It takes less time, and does more work to draw down the ashes from the top, and not to suffer it to rise above six feet. The former practice of burning in kilns was more expensive; did much less work; and, in many instances, calcined the ashes, and rendered them of no value.

I have recently seen a good deal of burning in various parts of Scotland, most of which was ill done, being burnt into lumps. I question whether clay can be made into ashes advantageously without a mixture of surface soil. It is either calcined, or not sufficiently burnt.

The advantage derived from ashes appears to be by absorption of the atmosphere. The necessity of having them fine (admitting the principle correct), is indispensable for their producing the full effect.

Some of the kilns I saw employed in burning clay, were worked with small coal. I recommend the breaking down the walls, in order to moderate the heat, as well as a means of expediting the work.

I have just completed paring, with the skim-coulter plough, twenty six acres of clover lea of the second crop, which I intended next year for turnips. The sods were well broken with the harrows, which freed them of the greatest part of the mould. The residue was burnt, and has afforded me above a thousand single-horse carts of ashes.

There are twelve mounds with seventy-two Winchester bushels each. One fire would have burnt the whole. This was not deemed expedient, as the increased cost of cartage would far have exceeded the expense of the additional lime.

I think it may fairly be supposed, that the lime adds full its worth to the quality of the ashes. Where limestone can be had, I should advise the burning a small quantity in the mounds, which would be a great improvement to the ashes, and at the same time help to keep the fire in.

I have manufactured for use this season, two thousand carts of ashes (single) and have raised from them fifty acres of turnips (Swedish), with sixty carts of ashes, fully equal to what had a hundred of good dung. Twenty-one acres with thirty carts very good. I expect they will reach thirty tons per acre. Some with forty on clay, not so promising;—the state of the soil accounts for the difference.

I should advise from fifty to sixty carts to be given;—you must understand I speak always of single carts. Two acres of cole, which had forty carts of ashes, the surface soil being burnt for turnips, are an admirable crop; and show, where there is depth of soil, the burning is unattended with injury.

I conceive I am justified in anticipating a rapid increase of green crops, the means of producing them being now within the reach of every one.

The farmer who consumes his straw with turnips, makes manure nearly in a ratio of eight to three, and advances the quality full one half. By augmenting the quantity of dung given to strong soils, much benefit will accrue, as has been satisfactorily proved by the interesting experiment of Mr Stewart of Hillside, Fifeshire.

I do not think I am too sanguine in viewing the general adoption of the system of surface soil and clay-burning, as likely to be the most important discovery for the interests of agriculture, that has occurred since the introduction of the turnip into Norfolk by Lord Townsend.

If any further information appears to you requisite, I shall have great pleasure in hearing from you;—gratified in the opportunity of proving the respect with which I have the honour to remain, your obedient servant, J. C. Curwen.

P. S. Since writing the above, I have had an opportunity of examining sixty acres of wheat, at Lilly Hall, raised by forty carts of ashes and sixty Winchesters of lime. The wheat is light. The clover such as was never seen before on this farm. The wheat was too late in sowing, for the quality of the soil and elevation of the situation. I do not therefore consider this as a fair experiment. At the same time, I would not again hazard wheat with a less quantity than sixty single carts of ashes, and should think it advisable to give eighty, or even a hundred, when no lime was applied.

FOR THE FARMER'S MAGAZINE.

On Local Mildew in Corn.

THE first thing that a physician does, with a view to the benefit of his patient, is to endeavour to discover the nature of the disease: Many persons, however, are not at so much trouble, when they give their opinions as to mildew in corn. A gentleman of some property, when asked about such a distemper, flatly denied that it had ever existed in his lands; and his neighbours confirmed the statement, after a personal inspection! These gentlemen had looked for the mildew, not on the stalks, but the ear. In fact, they knew little or nothing of a pernicious malady which had long existed in their immediate neighbourhood. The sagacious farmer, who understands it, and suffers by this malady, can hardly venture to publish the facts, as nobody would be disposed to purchase corn in any degree tainted with mildew. Confusion exists to a large extent in the information given on this particular subject. We hear of mildew, blight, rust, and of smut or blacking; failure, and other terms; very few of those who use them, being at pains to distinguish one from another, and being of course liable to endless mistakes.

Rust or mildew appears in dark brown spots along the stalks of corn, from about nine inches above the ground to the ear; smut is confined to the ear itself, which is wholly a soiling mass of black dust. These distempers are totally different, and ought to be accurately distinguished. The mildew is the same with rust, *Rubigo*; the smut is the same with the blacking distemper, *Ustilago*. Proper steeps, washing and floating the grain, and then dusting with hot lime, are well known to prevent the smut, if the seed be kept accurately clean, and sown immediately when these operations are over: But mildew was never known to have been in the least degree prevented by such

means in this island; and, when we read of such remedies having succeeded in other countries, we fear that smut has been confounded with, and taken for mildew.

Real blight ought to be considered the same with *Albigo*, and is entirely different from smut and mildew. The plants under this distemper assume a pale colour, and gradually exhibit a husky starved appearance. It seems to be caused most extensively and frequently by frost-mists settling by night, and remaining on the corn till they are driven off by the sun-beams: If wind blows through the night, these mists do not settle; and if rain fall on the corn before sun-rise, less damage ensues. This distemper is entirely different both from smut in the ear, and from the spotted mildew—appearing in the stalk and hurting the grain.

If these three kinds of distemper were accurately observed and distinguished, and if gentlemen would attend principally or wholly to facts, laying aside their own preconceived notions, and observing, instead of arguing with others; the public might hope to receive more satisfaction, and possibly something might be done to prevent the mildew and the blight, as a great deal has been done already to prevent the smut.

The most general cause of blight (*albigo*) being known to be frost-mists, it is obvious, that by draining, and, of course, by lessening the moisture and vapours of the adjoining lands, there may be something done for such crops as grow in the vicinity of peat mosses and other bogs: This will not prevent the blight in the hollow parts of those vales where frost-mists ascend from rivers and streams; but, even in these, it may be of advantage to remove stagnant water in pools, to straighten the course of the rivers, and to avoid the practice of such injudicious plantations across the vales, as tend to obstruct the free circulation of air: Thus, as ridges are less exposed to frost-mists than hollow places, the farmer will derive useful hints, where it is most profitable to sow his corn, and where his grass-lands ought to be. These remarks apply to such districts as are particularly liable to suffer damage from frost-mists, in the fields of corn.

The spotted mildew is a different kind of distemper, and it is of two sorts; viz. the general wheat mildew, and the local mildew of wheat and oats. The former appears only in particular seasons; but it extends its ravages far and wide, in all directions, and on every variety of soil and exposure, most commonly attending moist foggy weather, especially if also warm and sultry, and proving most pernicious to those varieties of wheat which carry the greatest quantity of moisture, viz. such as are thick-chaffed. This dreaded malady, though destructive of wheat, seldom, if ever, hurts the oat fields.

The latter sort of mildew is the local distemper which is equally destructive of wheat and oats. It is confined regularly within certain limits; but there it appears, and is less or more hurtful every successive year. There was a time, when, even within those limits, no such distemper was ever known;—a strong fact, which cannot be denied, and which naturally raises a hope that it may yet disappear. The ravages of this local mildew are in some years so very severe, that the wheat and oats within its range are scarcely worth cutting down. The farms and districts where it exists are well known, and regularly visited by this pest; while the neighbouring farms, at a moderate distance, are perfectly free of it. The influence of this local mildew does not correspond at all with that of general wheat mildews; the former appearing in years when the latter does not occur, and being sometimes less fatal when the other is most pernicious.

With respect to the cause of general wheat mildews, it has not been ascertained; though there is little doubt that it exists in the atmosphere, and is thence conveyed on the fields. It cannot be either in the seed or in the soil, which are the same, and in the same order, though the crops in some seasons are perfectly clear of such a malady, and in others deeply infected by it. There must also be something peculiar in the cause; which does not affect oats nor any other crop, but only wheat.

The cause of local mildew must be different, since it continues for years in particular farms and districts, not in the least affecting those which are in sight, and at no great distance. Two farms, at the distance of three miles, placed on rising grounds, with opposite exposures and aspects, have been liable to this local mildew in wheat and oats for many years in succession; and, during all this time, the flat vale of Annan, which lies between them, has been perfectly clear of such a distemper; and so have the lands contiguous to each of them, in every other direction. The inhabitants recollect, perfectly well, when there was no such distemper known to exist in either farm. The farmers were never secure of late years from this local mildew; and their neighbours, in other farms at no great distance, never felt nor dreaded such a thing. Oats and wheat equally suffered, which indicated a cause different from that of general wheat mildews; and the loss often exceeded the rent of the lands in both farms.

It was rational to suppose, that effects, which were so limited in point of time as well as extent, and so regular in particular parts, must have proceeded from a local cause. The heat or cold of the atmosphere extended all over the country;—the lime-husbandry was general in other farms;—there was a time when

there was no such distemper in existence in these lands;—frost mists produced distempers, indeed, but not particularly in these lands, nor in any of the lands adjoining, and not the sort of distemper in question;—it was therefore necessary to seek for some other cause of local mildew, answering to the time and place of its appearing. This view of the matter, and a strong concurring series of facts and of testimony, led to a cause of local mildew, which is denied, or even derided, by those who have not patience to attend to the evidence; or want candour to judge of it, or understanding to comprehend it.

Every one at first is disposed to be sceptical respecting the barberry as a cause of local mildew. It appears unaccountable; and is therefore sturdily denied, or dismissed as unworthy of notice; and other causes are immediately assigned,—such as, lime applied too often to the soil; a sultry electric state of the air; warm weather, followed by sudden colds; frost-mists, and the like;—not one of which is any thing else than a mere theory, inapplicable to the question, and inconsistent with the facts; and all of which are therefore liable to unanswerable objections.

In Dumfries-shire, the local mildew in wheat and oats is well known, in point of fact, to exist in all those farms where plants of barberry are intermixed in the hedges near the corn-fields. The distemper was never known, or heard of in any of those farms, before the barberry was introduced. It appeared in all of them a few years after the hedges were planted. It has continued regularly, since the first appearance of it, every year in those farms; doing less or more harm, according to circumstances, but always remaining and in action there. The barberry hedges in one district were cut down pretty close a few years ago; and then this malady intermitted in that part. The plants of barberry were extirpated out of two farms in the course of last season; and the local mildew disappeared in both for last crop, and also for the present. One garden only was left with plants of barberry in the hedge about it; and the adjoining field was last year tainted with mildew. Those plants, also, have been taken out; and that field is now, for the first time these many years, quite free of it. These are known facts in the places to which they refer.

In Ayrshire, it is admitted that mildew hung on the crops growing on particular estates for a great number of years;—that, less or more, it injured them every succeeding year;—that the barberry was rooted out which grew in the adjoining hedges;—and that since this took place, the distemper has not appeared. It is further admitted, that the factors or agents on

these estates are convinced of the influence of barberry in causing mildew; and that perhaps also the proprietors (who are persons of rank and fortune) are of the same opinion. These are strong corroborating facts.

Many experiments have been made in different parts of the kingdom, and in other nations also, with a view to discover how far the barberry is the cause of mildew. Corn has been sown round or near the plants of barberry; and the result has always been to prove the direct fact.

Innumerable observations have also been made, tending to establish the same fact. The influence of barberry has been remarked, as extending most fatally near hedges where such plants grow; and it has been traced along the corn in the same direction as the currents of wind. Local mildew has been observed to accompany barberry plants in hedges, appearing a few years after they were planted, and immediately disappearing on their being rooted out.

He that would venture to deny these facts, would hardly merit the trouble of being reasoned with; for they are so well established, as to be above the reach of doubt. At the same time, a natural prejudice arises against the reception of things which appear almost unaccountable; and most persons feel this prejudice, till the facts which bear upon it are brought forward.

It is not necessary for any one to attempt explaining the association of local mildew with barberry. We cannot explain the cause of the general wheat mildew; and possibly we may fail in attempting an explanation of the local mildew that affects wheat and oats, though it is known by observation and experience to follow the barberry plant. One would think that the fact is here quite sufficient: The barberry is not very useful in hedges; and those who persist in continuing to preserve it after so many facts are known, should be left to their own opinion, and to its consequences. A gentleman lately of this way of thinking, now owns that he has paid for his incredulity; but is at last persuaded of his error, and is now satisfied as to the cause of local mildew.

The case is not quite the same when persons venture to deny the facts which have been often proved, and confidently to submit their own theories in contradiction to known facts. This has often been done in such a manner as hardly to be worthy of animadversion; but an enlightened and respectable correspondent having ventured on this field in your last Number, it appears necessary to pay due attention to what he advances.

From that gentleman's knowledge of Ayrshire, it might have

been supposed that he ought to have known better, than to mention two or three years; whereas this is the sixth year of the experiment made with such known success in that county, to rid the lands above alluded to, in the parishes of Loudon and Dalry, of the local mildew, by rooting out the barberry. It may also be left to the good sense of the reader, to decide on the probability of another assertion of that gentleman, that the mildew had been very little known for 12 years before that experiment was tried; when the fact is understood, that a man was paid 10*l.* for his manual labour in rooting out the barberry from the hedges, and also a gratuity of no less than 50*l.* depending on the success of this experiment; circumstances not very likely to have occurred, if the mildew had been very little known for twelve years before.

To those who allow themselves to believe, and who are capable of understanding the vast number of microscopical fungi which feed on the stalks of mildewed corn, and the still greater multitudes of seeds which float by the wind from these fungi, when that seed (resembling black dust) has been ripened, there can be no great occasion for illustrating the manner in which these seeds may be sent off by the wind, from barberry plants, (which contain also fungi, and remain through the season as shrubs). It is evident that the seeds of these fungi must float into the fields of growing corn. Neither does it require much attention or strength of mind to conceive, how seeds which propagate, in favourable circumstances, so fast as to grow up into new plants again bearing seed in ten days, may soon destroy a crop of corn. There is no 'witchcraft' certainly in this, nothing inconsistent with 'common sense' in the apprehension of any rational and observing mind. Such expressions and remarks as these, containing disrespectful insinuations against others, ought never to have been made: And, least of all, ought this to have been done against a man eminent for science, at the head of the first scientific establishment in the British empire, and known for his disposition to render science useful to the public: They come with the worst grace possible from an author so able to investigate facts, but so inaccurate in the present instance in collecting and reporting them!

Nothing can be more vague and unsatisfactory, than the opinions of some who have written on the mildew, and who do not know how to distinguish this distemper. The rust or spotted malady on the straw, has been considered as different from the mildew, though it is precisely the same, and in the worst cases affects the ear also, and starves the grain. But it is entirely different from that pale distemper called Blight or *Albigo*, which

arises from frost mists; and it really appears astonishing that any person should attempt to account for mildew by naming a cause which produces only a different kind of distemper. It is equally unlucky for those who undertake this, that in point of fact the real mildew has no particular connexion as they suppose with lands on which the frost mists are seen and known to hang. The sort of weather described in last Number of the Magazine, (pages 295, 296, &c.) has often occurred; and it has done so since that Number was distributed, without occasioning any thing in the least resembling mildew. It is not the fact that local mildews have any connexion with 'serpentine rivulets or stanks or gutters of water,' or low and level places; but, on the contrary, we find all these clear of such a distemper, when it appears on ridges of dry land at a distance. This is acknowledged, indeed, (p. 297); and yet the cold vapour is mentioned as the cause, under the supposition that there may be 'something in the figure or quality of the fields which attracts or repels the cloud of vapour!'—'some attracting quality in the soil!' Such a mass of mere assumptions, at variance with known facts, ought not rashly to have been submitted to the public, in a paper professing to correct theory, and to state established and rational observations. It is the more necessary to notice the attempt, when it can have no good effect, and indeed no effect whatever, except to encourage those who are sceptical as to the barberry, or ignorant of its associations, in preserving that useless plant; and when the object of this attempt evidently is to discredit the numerous and well authenticated observations of many others in various parts of the world, in order to substitute an individual's notions, which want the character even of originality, and the support of correct facts and satisfactory illustration.

What is called the dangerous doctrine of that gentleman, (p. 299.) viz. 'that grain, though weak and light by mildew, may safely be used as seed,'—is as inaccurately stated as the other facts above noticed. It is merely mentioned by that person, as an important fact, 'that weak and light oats from a mildewed field have produced ample crops of plump, sound grain, in situations free of this malady; however doubtful respectable individuals may be regarding the policy of hazarding such an experiment.' This fact has been often established; and certainly it is of importance, as mildewed corn is of little or no use in the market. It has been stated, in much broader terms, by Sir Joseph Banks, and acknowledged in the late communications as to mildew from the Netherlands. It is not absolutely denied by any one. But a vast deal of useless reasoning

has been substituted, with a view to subvert the naked fact. It was proved, however, in the most remarkable manner, by a man of as much natural sagacity and veracity as any other that can well be named, the late Mr John Aiken, farmer at Kirkbank. He sowed, as he himself and also his servants declared, mildewed corn, as light almost as chaff, in lands situated in a different parish, where the mildew had never been known; and the produce was a crop of as fine and sound oats as the parish could produce. This fact is humbly submitted as more than sufficient, in reply to all the declamatory observations made upon it. Farmers need none of these observations to make them cautious as to their seed; but the fact may be of use to lead them to make experiments, which must tend to their own information and the public advantage.

It has not yet been the fortunate lot of any to discover the causes, or the remedy of general wheat mildew; but if those of local mildew are ascertained, and so easily brought within the power of human agency, something more may yet be discovered that is useful relative to general wheat mildew. And while practical and liberal observation meets with support and aid from science in this laudable attempt, the public ought to encourage their union, rather than to be drawn in by unprovoked and ill-founded prejudices directed against them. This was not to have been expected from any quarter; and certainly it comes very unexpectedly from the pen of a liberal and observing author. Let the simple experiment of rooting out the barberry be fairly considered as the means of preventing or alleviating the destructive distemper of local mildew. If it succeed, all the observations made to the prejudice of those who recommend it will be confessedly inapplicable; and if it fail, then is the time to notice the fact, and attempt to explain it.

To be able almost wholly to prevent the hurtful malady of smut, and also those local mildews which have been attended with great losses to the farmers, and, by draining and by judicious culture and selection of corn and grass lands, to alleviate in some degree the bad effects of frost blights, are no inconsiderable triumphs to the real patriot. What further may yet be discovered relative to the cause and prevention of general wheat mildew, cannot yet be known; but many useful facts are already ascertained on this important subject also; and for what remains wanting, the public must look rather to liberal observations than to prejudice.

K. K.

10*th September*, 1815.

FOR THE FARMER'S MAGAZINE.

Agricultural Report from the Barony of Loughinsholin, in the County of Londonderry, which contains 70,000 *Inhabitants, according to the Census taken under the late Population Act. Written in August* 1815.

THE appearance of the crops here, particularly the oats and flax, our two main crops, never was finer. Most of the flax has been pulled and watered, and some of it spread, from having been very generally substituted for barley (on account of the diminution in the price of that grain, by the suppression of private distilleries); and the flax has fallen in its price about one-third since last year. A peck of flax on the foot, (that is, standing in the field), brought a guinea and a half, or thirty shillings, last year; which sells now for a guinea or a pound, on six months credit.

Oats sell at five or seven guineas an acre, according to their quality and goodness; the kinds raised here are *Poland*, *Lightfoot*, and *Potato Oats*. The latter is reckoned most valuable, but is subject to considerable waste in the cutting and saving of it.

The only market for barley here is the public breweries at Maghera, and some other places; except such of the private distilleries as have not yet been suppressed in the neighbouring mountains. The fines inflicted last year for illicit distillation in one parish of this barony, amounted to more than six hundred pounds, which, with the active exertions of the revenue officers, has checked the progress of that nefarious trade, which is equally injurious to the health and morals of our peasantry. It is, however, to be regretted, that the Commissioners of Excise have not been able to devise some mode of encouraging the establishment of public distilleries at this time, when an abundant crop promises to afford a superfluity of food for our population, without injury to the public revenue, and with much advantage to the distressed farmers, who have high rents and war taxes to pay from the reduced prices of every article they have to sell.

The potatoe crop is as luxuriant as the others, though somewhat retarded, particularly as to the weeding of it, by the uncommon drought of the season. The late heavy rains have, however, loosened the weeds, and given fresh vigour to this valuable crop.

The potatoes here are of two distinct kinds, black and white; each of them subdivided into different varieties. The original

apple potatoe is little known. The black has the most delicious flavour in harvest and winter, but fails early in the spring; and is, moreover, late in coming forward. The whites are earlier, and, in general, continue longer eatable,—one variety of them, in particular, which we call '*Brown's fancies.*' These grow to a large size, and are generally very thick in the ground: Their flavour is very good, and continues unaltered to the end of July, when the new crop, in this case, meets the old.

One principal encouragement to the industry of the farmer in cultivating potatoes, has been withdrawn by the termination of the war. Pigs are no longer in that demand, which, but a short time ago, encouraged every cottager to rear one at least, and several farmers to feed many for the Belfast market. When pork was sold at four pounds an hundred, his pig oftentimes paid the cottager's half-year's rent for his habitation, and five or six acres of ground; and brought a proportionable profit to his landlord, whose extensive potatoe field enabled him to rear and fatten many. At this time, sucking pigs being usually sold at twenty shillings each, a breeding sow was a fund of wealth to the farmer who could keep one; though the losses of the broods pigged in winter were very considerable, from a disease called the Cripples, which often attacked them when two or three months old.

Our meadows, notwithstanding the injury they sustained from the very dry weather in June and July, have produced a heavy crop. In many places, however, the cutting of them was delayed until the weather broke in the beginning of the present month, when the labour of saving the hay was considerably increased, and the colour and smell of it, in most cases, irreparably injured. Little care is taken to improve the meadows of this part of the country; they are generally of a spritty or rushy nature, situated on flat low grounds, taken in from the skirts of the bogs, and are always relapsing into their original mossy and heathy state, unless they are frequently recruited by upland soil or lime composts.

This circumstance accounts for the lateness and inferiority of our hay crops, except those in rich uplands, or in gentlemen's lawns, where they are not only recruited in the winter by various kinds of manure, but, what is perhaps of greater consequence, *prevented from being poached by the feet of cattle in the wet weather of that season.*

Clover, white and red, is much used here, and has been, in general, good. We find this food convenient in many instances, but not conducive to the richness of our milk, or the flavour or quantity of our butter; which latter article, on account of the

unabated demand for it in the English markets, holds up its price, amidst the general depression of the value of almost every other article which our land produces.

We have no cultivation of peas, beans or vetches, or mangel wurzel here, though the Bishop of Derry has very successfully cultivated the latter in his mensal lands; and a clergyman in a neighbouring barony has planted a large field of peas, for the purpose of ploughing it up for manure, or shovelling up the earth of the furrows upon it before the crop ripens.

Although the principal summer residence of the ingenious Dr Richardson is within a few miles of this, at Portrush in the county of Antrim, and although a favourable trial of his favourite fiorin grass has been made by his intelligent friend Mr John Young of Ballynascreen, yet it is to be regretted, that the culture of that vegetable has made very little progress in this part of the country.

The summer assizes being over, the making and repair of our roads has ceased until the return of spring. Great improvements have been made in this line for a few years back, particularly on the great roads from Dublin to Colerain, and from Londonderry to Belfast, which cross one another at right angles near the village of Tubbermore. It has been observed, that the general appearance of the country improves with the improvement of the roads that intersect it. They may be considered, in a tract of reclaimable country, as arteries and veins in the human body, conveying life and vigour from part to part. This is particularly observable in tracts of land abounding in bogs, which, when cut up and drained by roads, soon brighten into meadows, pasture, and arable land, studded with cottages, and stocked with a proportion of labourers and cattle, sufficient, by their industry and manure, to impart incalculably more stamen to the newly created soil, than they draw from it for their subsistence.

Among the suggestions for improvement in the parish of Maghera in this barony, which contains ten thousand inhabitants, and fifteen thousand acres of land, arable, pasture, mountain and bog, the following may be found in the first volume of Mr Shaw Mason's valuable work, No. XXVIII. 'It appears to me, that 'the entire and complete abolition of that kind of tenure called 'rundale, or partnership in land, would tend much to ameliorate the condition of the people of this parish. The never-'failing consequences of the rundale tenure are, the loss of 'more than half the produce of the land, and the involving of 'the tenants in perpetual wrangles, quarrels, and lawsuits.

'Under the present system, the population of the country is 'collected into miserable clusters of dirty hovels, surrounded by

'dunghills, and all kinds of filth. Every man's house in the 'country *ought* to be on his own division of ground, by which 'he would have room for pigs, poultry, and dunghills; and 'might keep it in a cleanly and wholesome state. The necessity 'of such an arrangement for England was so evident in the time 'of Queen Elizabeth, that a statute was enacted, by which e-'very man's house in the country was required, under an heavy 'penalty, to be the distance of a bow-shot from that of his 'neighbour. The population was thus *evenly spread over the 'face of the country; and the accumulation of filthy and unhealthy 'villages prevented.*'

As our harvest is late here, the turf-drawing succeeded the road-making; and the greater part of the winter fuel has been home for some weeks. Our bogs here, together with turf, afford us an abundant supply of valuable timber of the fir kind, lying generally on the gravel under the turf, perfectly sound, and fit for almost any use to which foreign timber can be applied. The cottages are generally roofed with this timber, which is also used for household furniture; and a kind of black oak is also found in the bogs, which serves for ground joists, lintels, cow-stakes, gate-posts, and other purposes, for which better and more expensive timber is not required. The roots of the fir trees, which are found in great abundance over the more valuable timber, affords a pleasant succedaneum to our fuel and light:—Broken into small pieces, it cheers the gloom of the winter, by being thrown on our fires, *lignum super foco;* and, split into long narrow slips, it saves our spinners the expense of candle light.

Nor are fuel and light the only advantages we derive from the bogs that disfigure our landscapes, and seem such dismal nuisances to the eye of a stranger. They afford us a material aid in the cultivation of our cold, stiff uplands; the upper surface of them, drawn off and mixed with earth or lime, being the most valuable manure that can be devised.

At this season of the year, every landholder bottoms his dunghill-stead with stuff drawn from the bogs; thus (as he terms it) preserving the *seep* or *gooding* of the dung afforded to him by the excrements of his cattle, the residuum of his fuel, and the straw which he can spare from fodder. Early in the spring, the dunghills are turned; and, in many instances, drawn out to the fields for which they are destined;—and, together with the scouring of ditches, and a portion of the earth drawn from the lower parts of the tilled fields, (to which it is known to be continually warping from the higher parts), they are carefully heaped up for the potatoe-land.

In some places, large heaps of clay are piled up and burnt

for manure; and in others a portion of the soil of lay-ground is pared off, and consumed to ashes for the same purpose. The latter of these expedients is, however, coming into disrepute; having been tried on an extensive scale in the south and west of Ireland, where this practice has been for some time very properly confined to cold, mossy, and rushy low lands.

The cesses have been unusually high for some time back in this county, owing to the great expenditure which is making in erecting a splendid Sessions-house in Londonderry. The general taxes on windows, hearths, horses, dogs, carriages, &c. have been collected here. The pressure of them was very severe on the higher and middle classes amongst us. So heavy have those on *jaunting cars* and *riding horses* been considered, that the discontent at the payment of them has been very considerable, even among persons strongly attached to the government, and sincerely rejoiced at the happy result of the war which occasioned them. Certain it is, that if, by any unforeseen circumstances, they should be resorted to in the ensuing year, *they will be found unproductive*, as many of our farmers will sell their riding horses and dispose of their jaunting cars before the fifth of January, rather than again incur an exorbitant tax for keeping them. As for the dog-tax, the chief effect of it has been the slaughter of an immense number of these animals. One clergyman, with a moderate benefice in this barony, paid seventy-five pounds direct taxes; another sixty-two; and several gentlemen of small fortune, paid from fifty to an hundred pounds in the same way; whilst many opulent farmers who are content to live in cottages with few hearths and windows, and go on common cars, or walk with their families to their respective houses of worship and to market, escape by paying but a few shillings of these taxes. The great body of the people are completely unaffected by them, so that their weight falls exclusively on a valuable description of men, already too scarce in Ireland, and whom it seems to have been the favourite policy of the legislators and great landed proprietors of late years, very unwisely, to depress to the level of the order below them in society.

This report may conclude with the following Table of our market-prices—

Oaten-meal,	from	13s. 8d.	to	13s. 0d.	per cwt. of	112 lib.
Oats,	from	8s. 6d.	to	9s. 0d.		do.
First flour,	—	28s. 0d.		—	—	do.
Second do.	—	24s. 0d.		—	—	do.
Third —	—	15s. 0d.		—	—	do.
Fourth —	—	13s. 0d.		—	—	do.

Bran, — — 6s. 0d. per cwt. of 112 lib.
Firkin butter, — 116s. 0d. — do.
Rough Tallow — 8s. 6d. per stone of 16 lib.
Hides, — 45s. 6d. to 50s. 0d. do.
Beef, — — 4½d. to 6½d. per lib. 16 ounces.
Mutton, — — 6d. to 8d. do.
Potatoes, — 2½d. to 3d. per stone.

Fowl plenty and cheap; and Eels beginning to be plenty in the markets.

Maghera, Aug. 29th, 1815. J. G.

FOR THE FARMER'S MAGAZINE.

On the Decomposition of Peat Moss, considered as a Manure, by different Substances: With an Account of the Effect produced by the same. By JAMES ARBUTHNOT, junior, Peterhead.

[Transmitted by the Right Hon. SIR JOHN SINCLAIR, Bart.]

CARBON and hydrogen are pretty generally understood to be the pabulum of vegetation; and, if such is the case, (which can be known only by the effect produced), peat moss will be found a very great acquisition to the agriculturist. Peat moss, in its natural state, contains a considerable quantity of oxalic acid and tannin, which are both unfriendly to vegetation, and therefore it becomes necessary to employ some chemical agent to make moss eminently useful as a nourishment to vegetables. The substances I have used for this purpose are, Sea-weed, or Soda, Lime, Stable-dung, Sea-water, and Urine of cattle.

EXPERIMENT I.

In November 1808, I laid down on the fields 300 cart-loads of peat moss, which I mixed with 50 cart-loads of rotten sea-ware; these were put upon the most elevated part of the field, and laid *stratum super stratum*. In January 1809, the dunghill having attained the heat of 90° Fahrenheit, was turned, and well mixed; in March it was again turned; and, in the latter end of April, it was spread out upon 18 acres of land, and immediately ploughed in. On the 15th of May, the field was sown with wheat and barley; the wheat yielded at the rate of 6 bolls per acre, and the barley at the rate of 12½ bolls. This was one-third more than the field had hitherto produced, when dung from the town to the same extent was used.

Experiment II.

Another field was manured in the same proportion of composition to the acre, but the decomposing matters were cow-dung and sea-ware, of each equal parts to six parts of peat moss; the ground was planted with potatoes; and the produce was 50 bolls per acre, the quality excellent. Turnips, rutabaga, and cabbages were all tried with the same manure; the crops were all luxuriant, and the quality excellent.

Experiment III.

On May 1st, 1809, I began to lay the foundation of a dunghill consisting of 800 cart-loads of peat moss, and 150 of cow dung. The cattle had been littered with green rushes, which, although they had lain in the dung pits for more than nine months, showed no appearance of decomposition. About the middle of June, I mixed with this 50 hhds. of salt water; the decomposition then began very rapidly. The dunghill was first turned in the beginning of July, and six bolls of lime, newly slaked, added to it. By the latter end of August it was all grown over with chickweed, when it was again turned, and showed the appearance of a total decomposition of all the green rushes into mould of a uniform, smooth, soapy-like consistence, and a strong smell.

I applied the salt water and lime, because I was afraid, that, from the quantity of green rushes, there would not be enough of ammonia to neutralize the oxalic acid and tannin.

Experiment IV.

Consisted of 300 cart-loads of peat moss, and 50 cart-loads of dung from the town. The decomposition was completed as soon as in Experiment 3.; but the appearance was not equal throughout, although there was an abundant crop of chickweed.

Experiment V.—*July.*

Rough peat sods, with a benty sward, 200 cart-loads, and horse dung 30 carts. The fermentation came on more rapidly than in any of the others, owing to the heat of the weather, and the nature of the dung.

Experiment VI.

300 cart-loads of moss, and 450 gallons of cattle urine put on in 3 layers, in this experiment. The foundation of the dunghill was laid one foot deep with moss, and 150 gallons of

urine were thrown upon it. The fermentation came on almost instantaneously, attended with a hissing noise; the other two layers were then put on, one after the other, when the same effect was produced; eight days after, it was turned, and to all appearance super-alkalized. I have covered it over with old straw and sooty *divots*. I mean occasionally to drench it with cattle's urine, and turn it again in the spring. This dung I intend for onions and other horticultural vegetables.

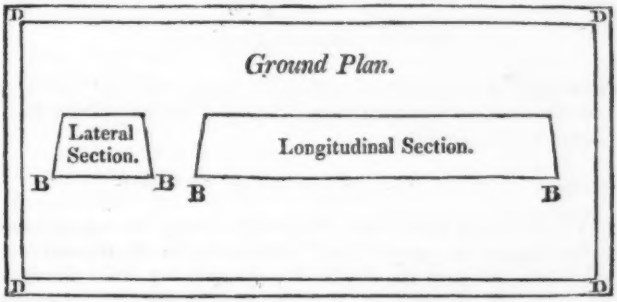
On the Preparation of Moss Dunghills.

After having pitched upon a piece of ground, (I prefer the most elevated situation), I cast a trench at D of from 50 to 100 feet long, and from 10 to 20 feet wide, forming an oblong square. (See the annexed Section.) The trench itself is 12 inches deep, and 18 inches broad. The space within the ditch forms the bottom layer of the dunghill. The moss is emptied upon the outside of the ditch all round, and thrown with shovels towards the centre, to the height of two feet, the side being kept perpendicular, or nearly so, by the large sods which are brought among the moss. (See B). When the moss has attained the height of two feet, the dung or other decomposing matter is laid down to the height of from 6 to 12 inches; of horse-dung, with a great deal of litter, I take 12 inches; and of rotten sea-ware or cow-dung 6 to 9 inches; afterwards I proceed with a covering of moss, to the height of one foot. The use of this is to prevent the ammonia and carbonic acid gas from being dissipated by the heat of the sun; and in case of any of these gases being set at liberty, that they may be absorbed by the oxalic or soraline acid and tannin. As soon as the dunghill has, by fermentation, attained the heat of 90° or 96°, it will be proper to turn it, and break all the clods as small as possible; a second fermentation will then take place; and if that shall happen during the summer, the whole dunghill will be covered over with chickweed and other delicate grasses, which is a pretty certain criterion of its total decomposition. If the second fermentation shall happen to be during winter, let the dunghill rise to 80°, and then turn it a third time. The substances best fitted for the decomposition of moss are as under.

Ammonia.	Human urine and dung. Cattle urine and dung. Horse urine and dung. Refuse of fish.
Potass.	The waste lees after boiling yarn or cloth. Ashes of burnt vegetables.

Soda.	Sea ware. Salt water. Soap-makers' waste.	
Calcareous Earths.	Quick lime. Shell sand. Marl.	These destroy the oxalic and tannin, but form of themselves insoluble salts.
Simple Bodies.	Spring water. Rain water. River water.	These all answer in the decomposition of moss, but require more labour than any of the former.
Vegetables.	All vegetable substances undergo, by fermentation, a change of their principles, and destroy the oxalic and tannin of moss; at the same time developing a considerable quantity of carbonic acid gas.	
Mineral Water.	Water impregnated with carbon of iron, will decompose oxalic and tannin. These springs are found in abundance near mosses. Water impregnated with hydrogen gas will do the same.	

Section of the Dunghill Lengthwise.



FOR THE FARMER'S MAGAZINE.

Clay Burning.

It is well known that this is an old practice, which at various times has been pursued with energy and success, and at other times has fallen into neglect. The oldest book in which it is

mentioned, is probably ' *The Country Gentleman's Companion,* ' by Stephen Switzer, Gardiner,' printed in London, in one volume octavo, anno 1732. In that work it is stated, that the Earl of Halifax was the inventor of this useful improvement; and that it was much practised in Sussex. There are engravings of two kilns for burning clay, one adopted in England, and the other in Scotland; where it is said to have been ascertained, that lands reduced by tillage to poverty, would produce an excellent crop *of turnips,* if the ground were ploughed two or three times, and clay ashes spread over it. In the same work, there are several letters, written in the years 1730 and 1731, stating that the plan of burning clay had answered in several parts of England; and accounts were received from Scotland, that upon experiment it had answered better than either lime or dung, but was found too expensive. In 1786, Mr James Arbuthnot of Peterhead tried several successful experiments with burning clay; so that the practice is not a new one. From the energy, however, with which it is now taken up, it is to be hoped that some plan will be fallen upon, to reduce the expense of burning clay; the only objection to the extensive use of that excellent species of manure.

August, 1815.

FOR THE FARMER'S MAGAZINE.

Account of the Mode of Cultivating 90 *English Acres of Turnips, on the Farm of George Rennie, Esq. of Phantassie, near Linton, in East Lothian.*

Drawn up by Sir John Sinclair and Mr Curwen.

Having lately spent some days in surveying the agriculture of that interesting part of East Lothian in the neighbourhood of Linton, we were much struck, among many other particulars worthy of observation, with the great extent of most excellent turnips, both of the Swedish and common sorts, on the farm of George Rennie, Esq. of Phantassie; * and have been led to draw up the following short statement of some circumstances connected with Mr Rennie's turnip crops, for the information of those who may be anxious to know what produce of that valuable root may be raised on good land, properly cultivated, and by what means.

* Phantaffie is on the great poft road, about half way between Haddington and Dunbar.

Mr Rennie's turnips are in two fields, one containing about 40, and the other about 50 English acres; or 90 acres in all.

The sorts are, 25 acres of Swedes, and 65 acres of Common turnips.

The seed of the Swedes was raised by Mr Rennie himself; that of the Common sort was got from a farmer in the neighbourhood.

The soil is a good gravelly loam, worth about four guineas of rent per English acre.

The course of crops was as follows.

1st Field.—40 English acres.

1. Turnips.
2. Wheat sown in spring.
3. Clover.—Cut for soiling and hay.
4. Oats.
5. Beans.
6. Wheat sown in winter.

2d Field.—50 English acres.

1. Turnips.
2. Wheat, and partly Barley.
3. Grass pastured for one year.
4. Oats.

The preparations for the turnips varied a little between the two fields.

The first field had five ploughings before the drills were made up.

One Ploughing in winter.	One in April.
One in March.	Two in May.

The second field had but four ploughings, being in better order; having had fewer crops since the previous turnips.

One Ploughing in winter.	One in April.
One in March.	One in May.

Besides these operations, the plough was made use of when the stitches were formed, and again when the dung was covered, previous to the seed being sown.

The Swedes were dunged, and sown in the two last days of May, and the three first of June. The Common turnips were sown between the 10th and 22d of June.

Both fields had been limed about sixteen years ago, at the rate of 300 bushels per Scots acre. There is reason to believe, that the great crops of turnips in Scotland are much owing to the quantities of lime used by the Scotch farmers. As a proof of that observation, Mr Rennie states, that upon a small part of the field, not exceeding an acre or thereabouts, which could not be limed at the time, from a deficiency in the quantity pre-

pared, the crop of turnips does not promise to be one half so valuable as upon the remainder of the field that was limed, though that part was, in every other respect, treated in a similar manner. Indeed it is right, in liming land, to leave a small part of every field without that manure, as, in this way, the benefit derived from it can be correctly ascertained.

The dung applied was at the rate of 12 tons per English acre for the Swedes, and 10 for the Common sort. Two additional tons of manure are required by the Swedes, to compensate for their exhausting quality.

The turnips were twice hand-hoed, at an expense of about 4s. 9d. per acre; and thrice horse-hoed, which may be estimated at about 7s. 3d. more;—total expense of hoeing, 12s. per English acre. Not a weed is to be seen in the two fields, nor any blanks.

The crop is so promising, that we estimate the Swedes will weigh, in November, about 30 tons, and the Common sort about 40 tons, per English acre.

No sight can be more gratifying to a friend to agriculture, than such an extent of ground, so judiciously cultivated, and so highly productive.

Edinburgh, 16th August, 1815.

FOR THE FARMER'S MAGAZINE.

On the Advantages of Sheep Folding, and other Subjects. In a letter from Thomas Butler Esq. of Hambledon, Hampshire, to the Right Honourable Sir John Sinclair, transmitted by Sir John.

46. *Northumberland Street, Edinburgh.*
August 28th, 1815.

SIR,

I FEEL much obliged by your polite attention in sending me for perusal your two volumes on Scotch Husbandry, from which I have derived much pleasure as well as information. I can add nothing to the many useful hints you have given to the Scotch farmers on the subject of hay-making; and were they to follow your advice, the quantity as well as quality of their hay would be much improved. The want of sun can be no excuse for their present mode of harvesting their crops, as it is well known that hay is never better made than under a cloudy sky without rain;—the process of making may be rather more tedious, but the quality will be superior to that made under a burning sun.

With respect to the management of sheep, particularly where there is much hill pasture attached to a farm, (as in many parts of Scotland), I conceive great improvement might at little expense be effected. The sheep, feeding during the day on the hills, might be driven in the evening to the nearest fields, (which would probably be those most distant from the dung-cart), and there folded, at the rate of about 4 or 5 sheep for every hurdle, each hurdle measuring about six feet. It is also an excellent plan to sow on the lands intended to be folded, the winter and summer tares (or vetches), so as to come in for feed in succession: On this system nearly double the quantity of sheep might be kept in a progressive state for the market, and the succeeding crops of corn might be fairly calculated at an increase of at least one-third. The summer tares should be sown in succession, from February to the middle of April: The early sown will come in for feed by the end of June, when they should be cut and placed in cages the same as are used for hay in the turnip fields, otherwise the sheep in a small fold, would, immediately on being admitted, trample them to pieces: Where the crop is good, a very small piece would suffice for the night; three hundred sheep would not eat an acre per week; and the dressing they would leave upon the land in consequence of the greediness with which they eat them, would be much increased. Tares are found very nutricious, especially after they are in blossom, before which they should not be cut. The best mode of sowing them, is by drilling, at nine inches apart, as they usually grow so luxuriant and become so matted together when sown broadcast, that in wet weather the under stalks are very liable to rot. I can speak from experience of the great benefit to be derived from feeding sheep on tares in the summer months, and of the numbers that may be kept on a small arable farm by uniting this system with that of the turnip husbandry. As I am not sufficiently acquainted with the prices of labour, ploughing, &c. in Scotland, I will not pretend to form an estimate of what the exact profits of this system may be; but as the tares might, in most instances, be sown with advantage on the summer fallows, the one or two ploughings the fallows would require during the summer would be saved.* This would reduce the expense of the crop to a trifle, in fact not more than the purchasing the seed, which, at two Winchester bushels per acre drilled, and at 10s. per bushel, would not amount to

* According to the mode of dressing fallows in Scotland, six ploughings are commonly given. The sheep, by this plan, might manure the land sufficiently, if the tares should happen to grow, but certainly would not clean and pulverize it, two of the great objects of fallow.—*Con.*

more than 20s. per acre. The advantages to be derived from always penning your sheep on the ground they are to be fed on, in preference to their running at large, are, in the first place, that a much greater number may be kept on a given number of acres; and in the next, that the ground on which they are penned is in a constant and rapid state of improvement. Being trained in this manner, sheep also become perfectly quiet, and never attempt to jump over or break their fold, which must frequently occur with those taken wild from the hills and placed on turnips.

If you will not consider me as trespassing too much on your time and patience, I shall endeavour to explain the advantages which I conceive may be derived from the use of the scarifier, an imperfect sketch of which I showed you on our walk to Leith. From the beds where the tines are placed being fixed to a beam or lever, it has the same, if not greater power, to enter the strongest soil, than the wheel or swing plough. The depth is always regulated with the greatest facility and precision, by pinning up or down the side wheels; and, as the tines are wedged in, they may be lengthened at pleasure, so as to admit sufficient room, where ground is very foul or wet, to allow the weeds and earth to pass through without choking up, which is too frequently the case with implements of this description. Where the ground is hard, and has not been broken by the plough, the tines should be wedged in short, otherwise the resistance might break them; in either case, whether wedged long or short, the depth they are to work at is entirely regulated by the side wheels: These are properties which I conceive do not belong to the grubber. As this implement was invented by me, for the use of my own farm at Hambledon in the county of Hants, I shall briefly state the purposes to which I have applied it. In the spring, as soon as a sufficient breadth of turnips is fed off, I begin working the scarifier with four horses, and seven tines, at the depth of about six or eight inches. After the ground has been all gone over in this manner, I cross it with the same tines about an inch deeper; and, provided it worked freely the first time, three horses will be sufficient for the second. The ground, by these two operations, becomes sufficiently loosened, and in a great degree pulverized. I then take out the seven small tines, and put in their places seven larger, the four hinder ones rather more than covering the space moved by the three fore ones; by which means it is scarcely possible for a weed of any description to escape. This last operation, which is also performed by three horses, leaves the ground in a state for the sowing of any kind of grain, as in general very little rolling or harrowing is requir-

ed; and the dressing from the sheep, of which a portion is urine, is by this means mixed up on the surface of the soil, and, at the same time, greater depth is given for the plants to root in. After the scarifier has been worked three times over the same ground, I consider as much has been accomplished as would be by twice ploughing; the difference, therefore, in point of labour, will be, that the scarifier, being four feet and a half wide, will go over with ease, once, four acres per day, and complete them for sowing in three; therefore, supposing four horses to be employed at each operation, (which I have before said is not always necessary), they will perform in three days what the same number of horses in two two-horse ploughs will not do under four days, at an acre per day each plough: * Besides, the ground being left in a much more pulverized state, this will make a saving of two days in the week, which, in the hurry of spring-sowing after turnips, is an object of great importance, particularly on the barley soils. The operation of ploughing after turnips, is, in general, by most farmers so shallow, from the fear of burying the sheep-dressing too deep, that a sufficient tilth is scarcely raised to cover the seed when sown.

After my turnip sowing is finished, and my clover leys have been close penned over with sheep, which is about the first week in July, I plough them up, and, after they have lain a fortnight or three weeks, I work them over twice with the scarifier, which will completely bring on the surface all couch and weeds. This implement will go perfectly steady at any depth, without holding, and will turn at the land's ends without assistance. Where ground is foul from weeds, I have a man or boy to follow it, who walks with a stick pointed with iron, to disengage any weeds that may cling around the tines.

The machine for sowing small seeds, such as clover and grass, is so simple and complete, that I will desire the maker, Bennet of Farnham, to send one down to Morton as a pattern. A man, or stout lad, will wheel it with great ease; it covers twelve feet, and sows the ground as true as it is possible for seed to be deposited. I have the honour to be, Sir,

Your faithful and obliged

THOMAS BUTLER.

* If Mr Butler employs a driver to the four horses, as is most probably the case, this will bring the two methods, so far as regards expense, to nearly the same thing. Besides, in ploughing a second time after turnips, which is by no means necessary in every case, a two-horse plough will work considerably more than an acre a day.—COX.

FOR THE FARMER'S MAGAZINE.

Account of an Improved Mode of Raising Crops of Grain, by means of a Drill-Barrow.

By the Right Honourable Sir John Sinclair, Bart.

I have never entertained a moment's doubt, that when the attention of this great nation was directed to its agricultural interests, not only that a number of points of lesser importance, connected with the cultivation of the soil, would be ascertained, but that some *great practical improvements* would be discovered, from which the most beneficial consequences might be expected. Among these improvements, I am inclined to rank the method of drilling corn crops, to be afterwards described, as one that is likely to be of service, more especially on small or moderate sized farms. I am anxious, therefore, that the nature, the origin, and the progress of this system should be made known, that its merits may be thoroughly investigated; and, if found to answer, that it may speedily be brought into general use.

The usual modes of depositing the seed in the ground, are two. 1. Sowing it broadcast on the surface; and, 2. By a drill machine.

1. Seed, "*when sown broadcast on the surface,*" it is well known, is liable to the attacks of birds: besides, several harrowings are necessary, which cannot cost less than from three to five shillings *per* acre: whereas, with a drill crop, all that is requisite is, to level the surface by one *time* or turn of clover harrows, which may be done for one shilling and sixpence *per* acre. When sown broadcast, the seed is unavoidably placed at various depths, in consequence of which it not only comes up unequally, but sometimes the root is so near the surface, that it is thrown out of the ground in spring, or afterwards loosened by high winds, when the plant is beginning to fill.

2. "*The system of drilling,*" as commonly practised, is likewise liable to several objections. The machines used are expensive, and so complicated, that they cannot be managed without greater care and attention than is usually bestowed on agricultural operations; and, being only used at one season of the year, are extremely liable to get out of repair from neglect. In regard to the operation itself, it is difficult to keep drill machines in a straight direction; hence, in some cases, the drills run into each other, and leave corresponding gaps in others; nor are the hoppers always equally right, one or more often choaking, and rob-

bing so much land of its seed. * Owing to these circumstances, drilling has often been given up, after much expense has been incurred in giving it a trial. It is admitted, that sowing turnips, potatoes, beans, and, in the opinion of some, even peas, *in drills*, is the preferable mode; but in regard to sowing the several sorts of grain, the broadcast system, notwithstanding the disadvantages to which it is liable, is much more general, and is likely to continue in use.

For a number of years, it has been the practice in East Lothian, to sow beans by a drill-barrow. Above thirty years ago, a distinguished farmer in that county, (Robert Brown, Esq. Markle), tried that plan with barley, in order to prevent the growth of annual weeds, which he effectually extirpated by that means. Mr Rennie of Oxwell-mains near Dunbar, likewise informs me, that he was accustomed for many years to drill wheat, barley, and oats, with the same machine with which he drilled his beans. The barrow was attached to a conductor, reaching very near the ground, which prevented the seed from being too much scattered by the wind. † Being thus enabled to hoe between the rows, he cleared his land so effectually of annual weeds, that he thinks drilling any longer unnecessary, as the expense of exterminating those weeds, by hand picking, has now become very trifling. He adds, that, in his opinion, on small farms, the drilling ought to be tried with a drill-barrow, before more complicated machines are attempted.

The same plan of using the bean barrow, with the brushes made closer, was tried by William Hume, Esq. on the farm of East Barns. The land was *ribbed* as it is called, at about thirteen inches apart. The crop was sown in the usual manner, and produced about fifteen bolls *per* Scotch, or forty-eight bushels *per* English acre. Mr Hume has since got a drill machine that sows six rows at a time, which he considers a great advantage, as it sows about an acre *per* hour, or from ten to twelve acres *per* day. Mr Hume, however, states, that on small farms of one or two ploughs, the bean-barrow will do very well, with this circumstance in its favour, that it sows the rows the way the ridges lie, whereas the machine he uses must always act across the ridges, so that the whole field must be ploughed and harrowed before the sowing commences, which, on wet land, is certainly dangerous.

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* Farmer's Magazine, vol. v. p. 16.

† Mr Rennie also made ridges about fifteen inches apart, and caused a person to sow the grain in the common method, or broadcast. It fell regularly into the bottom of these ridges, and was covered in by the harrows. This plan answered very well.

Being extremely anxious to bring this mode of sowing grain by a barrow, in single rows, to all the perfection of which it is capable, I was glad to find that an ingenious artist, Mr Alexander Small on Leith Walk, (son of the celebrated inventor of the improved Scotch plough), was preparing some of those barrows for sowing grain, and that Mr Dickson of Bangholm, near Leith, a spirited and intelligent farmer, was willing to try the necessary experiments for ascertaining how far the plan would answer.

The first idea was, instead of *ribbing* the land, to attach a box to the plough, so that the seed should be sown in the furrow as the plough moved along. This plan has certainly been attended with success, and in some cases may still be adopted: But upon fully considering the subject, it has, on the whole, been thought most advisable, to separate the box from the plough, for the following reasons; 1. By this means, when the box must be replenished with seed, a boy is only stopped, whereas when a plough is used, a man and two horses are hindered from working; 2. When the wheel is to one side, the plough is not so easily held; and, 3. The addition of the box makes it more difficult to preserve the proper depth of the seed furrow.

The plan, altered on these principles, may be thus described.

1. As soon as a furrow is made, a boy, with a box or barrow, deposits the seed in the furrow, which is covered with the next furrow-slice. This is easily effected even in windy weather, when sowing broadcast is attended with difficulty.

2. The furrow-slice ought to be from three to four inches deep in strong land, and from four to five in light. And,

3. The crop should be hand-hoed where a drill-hoeing machine is not made use of. *

The rows may either be made at ten or fourteen inches distance; but ten inches is considered sufficient by the generality of farmers, more especially where hand-hoeing is adopted. It is easy with a plough to make a furrow about ten inches wide; but where it is proposed to have a furrow of fourteen inches, it is necessary to have two ploughs, with narrow bottoms, to follow

* In some cases, the following plan might be adopted. As soon as the ground is prepared for the seed-furrow, it may be covered with moist and rotten dung; and then, either the seed may be sown in the furrow made, and the dung raked over it, or the dung may be first raked into the furrow, and the seed sown upon the dung, and then covered with the furrow-slice. It would evidently be a great advantage to have the seed sown with moist dung, particularly for barley in dry springs. This process is at least well calculated for the Flemish system of husbandry.

one another, each making a furrow of seven inches broad. Mr Dickson has tried various breadths between the drills, as nine, ten, twelve, and fourteen inches; but, on the whole, he prefers ten inches on light soils, because the wheat does not tiller; and the same breadth for oats and barley; though he thinks fourteen inches necessary, when wheat is sown on strong land, where it is likely to tiller much.

Among the advantages to be derived from this system, the following are of peculiar importance.

1. The seed is deposited at a proper and equal depth, in consequence of which it takes a fast and a similar hold of the ground, and is not likely either to be affected by winter or spring frosts; nor will the roots be loosened when the ears begin to fill, a point of great consequence; for the grain makes no farther progress to perfection, (the ascension of nutriment to the ear being prevented), if that circumstance takes place.

2. The advantages of this plan, for the extirpation of weeds, is inestimable; indeed, were it generally adopted, not one annual weed would disfigure our crops of grain. The expense of twice hand-hoeing may be estimated at five shillings *per* Scotch, or four shillings *per* English acre.

3. Mr Dickson's experiment has proved, that, on this plan, clover may accompany winter wheat *with peculiar advantage*. It admits more free circulation of air for the young clover; and the intervals between the drills being hoed twice, the clover seed is thus sown upon a clean and pulverized bed, where it can hardly fail to vegetate, as the moisture is brought to the surface. No young crop of clover can be more promising than what Mr Dickson has this season in a field of wheat cultivated by the above process. The time for sowing the clover seeds depends upon the weather. The first hoeing generally takes place between the 20th of April and the first of May, if the season is favourable; and the second from the first to the 15th of May, according to circumstances. Ten days should elapse between the two hoeings. The clover seed is sown immediately before the second hoeing, and the seed covered in by it. The whole field then gets a single *time* or turn of the grass-seed harrow, to level the surface.

4. In addition to all these advantages, (so far as can be judged from the experiments already made), fully as great crops of grain and straw are produced under this system as under any other hitherto tried. In regard to wheat, in particular, Mr Hume had, (as already stated), about forty-eight bushels *per* English acre; and Mr Dickson has this year, a field of twenty-seven Scotch acres, sown by a box attached to the plough, the

produce of which, from its appearance, is likely to be very considerable. The heads of the wheat, thus drilled, are evidently larger.

If this system answers, according to the expectations that are formed of it, the cultivation of grain may be brought to a degree of perfection which it has not hitherto reached. The whole plan is so simple in its operations, that there can be no difficulty in its execution. No expensive or complicated machinery is necessary; on the contrary, the same simple barrow, by an alteration in the size of the *flute* or hollow part of the roller used, will answer all kinds of crops; and, besides the other advantages already stated, the crop being cleared of weeds, it can be harvested to much more advantage. In fact, unless some simple plan of this sort is fallen upon, the drilling of corn, however essential for the extirpation of weeds, can never become a general practice among farmers.

On the whole, I hope, that such public spirited farmers as may have an opportunity of perusing this paper, will try the practicability and utility of the plan, with some portions of their ensuing crops, and will communicate the result of their respective experiments to the Highland Society of Scotland, to the Farming Society of Ireland, to the Farmers' Club at the Thatched House St James's Street, or the Board of Agriculture at London, that through some of these respectable channels, information regarding so important a practice may be communicated to the public.

Edinburgh, 27th July, 1815.

N. B.—The drill-box may be had from Messrs Small & Co., with a proper set of rollers to sow all sorts of grain; * the drill-box, and the drill-barrow of wrought or cast iron, or of wood, (price, according to the size, from two to three guineas and a half), may likewise be had at Mr Morton's. Both reside on Leith Walk, Edinburgh.

FOR THE FARMER'S MAGAZINE.

Mr Lee's Invention for Dressing Flax and Hemp.

A PAMPHLET has been recently published, under the title of 'Minutes of the Trustees of the Linen and Hempen Ma-

* The fluted rollers may either be made of wood, or of cast iron; and it is a better mode, and more to be depended on than making the brushes closer. The box should contain from a peck to a peck and a half.

nufactures of Ireland, respecting the Mode of Preparing and Dressing HEMP and FLAX, introduced by Mr James Lee.' The vast advantages which this discovery promises to the agriculture as well as to the manufactures and trade of the kingdom, induce us to lay before our readers the most important facts given in these Minutes, with the highly respectable evidence by which they are authenticated. The Trustees in Ireland have done themselves honour by their early attention to this subject, and the liberal exertions they have made for the purpose of extending Mr Lee's discovery. But we are sorry to learn,—and that we may not in any degree mislead the public, it is our duty to state,—that a most intelligent correspondent in Ireland informs us, in a letter dated the 15th October, that 'the machines have been tried in the north of Ireland, and found *not* to answer. If not skilfully managed, they will cut the flax, and the quantity they execute is only, as stated by Mr Lee, ten or twelve pounds per day, which is *trifling*. The machine requires to be so exactly made and kept in order, the peasantry of Ireland will not be able to manage it.' This is nothing worse than was to be expected. All new machines work ill in the hands of unskilful managers, of that class in particular which is found but too generally extremely averse to every innovation on their established practice. A winnowing machine sent by the late Mr Culley to the celebrated Bakewell, was laid aside as useless, until Mr Culley himself, upon a visit at Dishley, sometime after, proved its utility by working at it himself, and instructing Mr Bakewell's servants. And as to the small quantity of work done, this does not seem a very material objection, as the machines may be attached to mills worked by water, steam, &c. as we learn from these 'Minutes.' But should nothing more be certain, than that flax and hemp may be dressed to a superior degree of fineness, the strength of the fibre being in no degree diminished, without the present tedious, disgusting, and hazardous operations of steeping and *dew-rotting*, this discovery alone must soon, in the hands of our ingenious mechanics, bring forward much more perfect and powerful machines than it is reasonable to expect could all at once be constructed by Mr Lee himself, however great may be that gentleman's talents. This we imagine is a point determined in the clearest manner; and, certainly, neither the time nor the expense required for dressing hemp and flax by these machines, deserve to be mentioned in a comparison with the present practice. These crops, indeed, are allowed to be very exhausting to the soil; but if rent is to be paid at all from tillage lands, some other crops than corn must be tried, as corn, at the present prices, will hardly pay the ex-

penses of cultivation, even upon good soils, without leaving any surplus either for rent or farmer's profit. But in most instances, it is probable, the labour and uncertainty in bringing hemp and flax into a marketable state, have, more than any other cause, confined their growth in this country: This difficulty Mr Lee has the merit of removing; and, as it would appear, by substituting for the common method, one that is comparatively cheap, certain and expeditious.

To condense the substance of this pamphlet, so as to suit our limits, we shall notice in its own words, 1. The different machines required, and the price charged by Mr Lee for each; 2. Mr Lee's instructions for using them; 3. The produce of the different qualities of flax from a given weight of the raw material; and, 4. The opinions of manufacturers of great experience as to the value of the article, in its different stages of fineness. We shall then advert to the steps taken by the Irish Trustees for propagating the discovery in that country.

I. "The process," says Mr Lee, "is divided into two parts; the first part is intended for the Farmer, or Flax-grower, to bring the flax into a fit state for general or common purposes. This is performed by three Machines, one for thrashing out the seed, one for breaking and separating the wood from the fibre, and one for further separating the broken wood and matter from the fibre. I think, however, in some cases, the Farmers will thrash out the seed in their own way, and, therefore, the first Machine will be unnecessary to such persons; and I think in cases where both the breaking and the cleaning Machines could not be afforded, that by fixing the breaking Machine a little closer, the flax might be brought to *nearly* the same state as with the two Machines. The second part of the process is intended for the manufacturer to bring the flax into a state for the very finest purposes, such as lace, cambric, damask, and very fine linen. This second part is performed by one machine only."

With regard to the price, Mr Lee adds, "I am disposed to allow Artificers that may be considered proper persons in Ireland to make those Machines, and sell them at the cheapest rate they can, on condition that the Linen Board will agree to pay to me, or my Agents, a bounty of two pounds, English money, on every Machine that may be sold by me or my Agents, in Ireland, for the purpose of breaking and cleaning flax and hemp; also a bounty of two pounds ten shillings, on every Machine that may be sold for the purpose of refining flax or hemp; the same bounties to be allowed for all Machines made by persons for their own use. The bounties to be continued for the term of three years from the time of agreement.

" I propose, in the first instance, to supply the Linen Board with 50 Machines for thrashing out the seed, at 2*l.* 10s. each; 1000 Machines for breaking and cleaning flax and hemp, at 4*l.* each; 100 Machines for refining flax and hemp, at 7*l.* each, all British money. The above prices to include the bounties; and I shall be willing to deduct from the four pounds for each of the breaking and cleaning Machines, any sum that I can be enabled to get them made for in Ireland, under forty shillings each, and also agree, that in case I should reduce the price of these Machines to less than forty shillings, in any part of the United Empire, I will make a similar reduction in the prices on all I may sell in Ireland.

" I consider the bounty asked, if granted, as liberating the people of Ireland from all claim from me, on account of my Patent, and that they will be at liberty to make the machinery, on the best terms they can, by proper workmen appointed for that purpose, during the term of three years, subject only to each Machine being marked by the Stamp of the Linen Board, and also my private mark."

II. Before proceeding to give directions for the use of the Machinery, Mr Lee's preparatory instructions in regard to the flax itself, deserve to be attended to.

To Save the Flax and the Seed.

" Flax should be pulled when the lower part of the plant begins to turn yellow, and when, on opening the pods, the *most forward of the Seeds* are found in a *soft state*, and the middle of the seeds is green; while the seed is quite soft, the flax should be spread on the ground, in bundles about as much as a woman can grasp with both hands, and it should remain so, till the upper part is dry: in fine weather it will be dry in twenty-four or forty-eight hours; the bundles should be then made up, with the dry part inside, and then set up in stooks, of ten bundles each, and stand on the ground till the whole is dry, pods and all; the seed will then be ripe, and the flax will be in the best state; it may then be stacked, housed, or worked; great care should be taken to keep the root-ends even."

Instructions for Using the Machinery.

" The process is divided into *two* parts; the *first* part is intended for the Farmer, or Flax-grower, to bring the flax into a fit state for general or common purposes. This is performed by *three* Machines, *one* for thrashing out the seed, *one* for breaking and separating the wood from the fibre, and *one* for further separating the broken wood and matter from the fibre. In some cases, the farmers will perhaps thrash out the seed in their own way; and, therefore, in such cases, the first Machine will

be of course unnecessary. The *second* part of the process is intended for the manufacturer to bring the flax into a state for the very finest purposes, such as lace, cambric, damask, and very fine linen. This second part is performed by the refining Machine only."

1.—*The Thrashing Machine.*

"Take the flax in small bundles, as it comes from the field or stack, and holding it in the left hand, put the seed-end between the thrashing machine, and the bed or block, against which the machine is to strike; then take the handle of the machine in the right hand, and move the machine backward and forward, to strike on the flax, until the seed is all thrashed out."

2.—*The Breaking Machine.*

"Take the flax in small handfuls in the left hand; spread it flat between the third and little finger, with the seed-end downwards and the root-end above, as near the hand as possible; then put it between the beater of the breaking machine, and beat it gently till the three or four inches which have been under the operation of the machine appear to be soft; then remove the flax a little higher in the hand, so as to let the soft part of the flax rest upon the little finger, and continue to beat it till all is soft, and the wood is separated from the fibre, keeping the left hand close to the block, and the flax as flat upon the block as possible. The other end of the flax is then to be turned; and the end which has been beaten is to be wrapped round the little finger, the root-end flat, and beaten in the machine till the wood is separated, just in the same way as the other end was beaten."

3.—*The Cleansing Machine*

"Is to be used in the same way, in all respects, as the breaking machine; first cleansing one end of the flax, and then turning the other, keeping the flax all the while flat in the hand."

4.—*The Hackle.*

"A common hackle will be found useful, in this stage, for opening the ends; and may be placed, for greater convenience, at the side of the breaking and cleansing machine.

"This concludes the *first* process of the machinery intended for the farmer, or flax grower. The *second*, or manufacturer's process, requires

5.—*The Refining Machine.*

"Take a small piece of flax, as it comes from the breaking or cleansing machine; pass the seed-end through the fluted rollers of the refining machine, and bring it round, laying it flat on the root-end of the flax, forming it into a skein. A few fi-

bres of the end brought round, and looped in the flax on which it is laid, will keep the skein together. It must be kept flat and even on the machine, which may continue to go round, and work the flax, till it is brought to any degree of fineness that may be required; and this will not require more than from two to six minutes."

6.—*Washing or Whitening.*

"The flax, when prepared by these machines, *without having been water-steeped or dew-rotted*, may be washed in small quantities at a time, either in water only, or with soap and water, without any other mixture, and brought, by these simple means, to the purest white. It is to be wrung several times in water till the water becomes no longer coloured from the matter; and care is to be taken that the flax is laid flat like tape, and then spread upon the grass; but it is recommended that the flax should be spun in the yellow state, and then washed in warm water and soap, or boiled, with care, in water and soap, from ten to fifteen minutes, which, when dried, will be perfectly white. If the weather should be favourable, it would be well to have it dried on the grass." *

III. As to the produce, of different degrees of fineness, from a given weight of the raw material, we have the following statement by Mr Lee, which is confirmed in another part of the pamphlet, by the trials made by others.

"112 lib. of flax from the stack, after the seed was thrashed out, produced 30 lib. in the state No. 1.; refined to No. 3., it produced 20 lib. of flax and 3 lib. of common tow; 20 lib. of No. 3. produced 14¼ lib. of No. 4. The loss in weight is caused by the discharge of matter; there is no loss of fibre.

"An average crop will produce about two tons to the acre, after the seed is thrashed out. This will produce one fourth fibre, making 10 cwt. to the acre, No. 1."

IV. The following extracts from the evidence taken before a Committee of the House of Commons in March 1813, prove the greatly superior value of the hemp and flax dressed by Mr Lee's machines, which is indeed apparent to every one who has had occasion to inspect them.

Mr William Dunbar examined, (a manufacturer and importer for twenty years.)

"What do you observe to be the material difference between the hemp and flax prepared by Mr Lee's process, and that pre-

* As to the labour required, Mr Lee's foreman stated to the Committee of the House of Commons, that the machines are easily wrought by women or girls, and without any assistance from men.

pared by the old process?—It certainly exceeds in strength, fineness and in colour, any thing I ever saw under the name of flax.

"Do you think this hemp (No. 2.) of greater value to the manufacturer, than the best Russia or other hemp you have ever seen?—Yes, I do.

"What is your opinion of the comparative value of the hemp now shown you, with the best Russia hemp you have ever seen, applicable to the purpose of making canvas?—I think 50 per cent. more value, for the following reasons—It would spin for the shoot or wooft of canvas of the first Nos. (or the strongest sort), without undergoing the operation of hackling. There is no occasion for the yarn to be steeped in water, which is usual, and boiled in a lees of soap and ashes, it being sufficiently purified and fit to be put into cloth in its present state, by which a considerable saving in weight of the material, as well as the expense attending these processes, would be made; and I further conceive, that canvas made of this hemp would be much stronger, and capable of bearing a greater strain and pressure than that made from any hemp imported from Russia, and less liable to mildew, on account of the mucilaginous or oily substances that are so invariably in Russia hemp, and which is supposed to cause the mildew of the canvas so much complained of.

"What is your opinion of the comparative value of hemp (No. 3.), and of the very best hemp you have ever seen, English or foreign?—It so far exceeds any thing I ever saw under the name of hemp, that I cannot estimate its comparative value; but I believe it to be of very much greater value to the manufacturer than any hemp I have ever seen.

"What is your opinion of this flax (No. 4.), in comparison with any flax, English or foreign, you ever saw?—I must give the same answer.

"Have you ever been conversant with any of the manufactures from hemp or flax?—Yes.

"What are the manufactures you are most acquainted with?—From common household linen, to that used in the highest and most respectable families; to the best damask.

"In all of these, do you think the article which you have seen, prepared according to Mr Lee's mode, is of considerably greater value, as applicable to the above articles, than those prepared according to the mode hitherto in use?—I do.

"Does the seed, upon the flax now exhibited, appear to have been sacrificed; or has it been permitted to ripen?—It has been permitted to ripen.

" By the ordinary mode, in order to make the finest flax, is it necessary to pull the plant before the seed ripens?—Yes. "

William Everett, Esq.—examined.

" What time was employed in the process you witnessed yesterday, including both flax and hemp, from the commencement on the whole plant, to bring it to its most perfect state?—About six hours.

[Mr Everett delivered in a sample of flax produced by this operation, together with the seed which was preserved from the same plant.]

" Was the sample of fine flax prepared from plants which have borne seeds?—It was.

" Did you see the seeds upon the plants immediately before the commencement of that operation?—I did.

" Is that seed in a perfectly dry state?—As far as my knowledge goes, it is; and, I believe, in a state fit for growing a crop for this year. "

Charles Grant, Esq.—examined.

" Have you been long concerned in business, giving you the opportunity of knowing the quality of hemp and flax?—Yes; about 20 years.

" Have you been largely concerned in mercantile transactions in those articles?—Very largely.

" Have you seen samples of Mr Lee's invention, Nos. 1, 2, and 3?—I have.

" Have you particularly examined them?—I have.

" What do you observe to be the particular difference in respect to No. 1?—It is superior in cleanness, strength, and colour. No. 2 is superior in the same respects, and in softness, which makes it more applicable for the purposes of manufacturing into sail cloth. No. 3. is so much superior to any thing I ever saw, that I am no judge of it.

" What do you think of No. 4 (Flax), in comparison with any flax you ever saw, British or Foreign?—I have never seen flax brought to this perfection, either British or Foreign. As to the state of No. 3, I have seen flax brought to this state of perfection.

" Do you believe it to be of much greater value to the manufacturer than any brought to this state heretofore?—It is cleaner and freer from tow than any foreign flax I ever saw.

" What do you think the difference in value between this and the best foreign flax in the same state of preparation?—All I can say, I conceive it to be more valuable, for the reasons already stated; being cleaner and freer from tow.

" Are you able to state, whether sample No. 4 is strong?—Certainly, it appears so to me; and stronger than I conceived any flax could be brought to, of so fine a fibre."

In consequence of this body of evidence, upon which a Committee of the Irish Trustees make some very judicious observations, the Board resolved to purchase from Mr Lee, the following machines, or as many of them as he can furnish before the 1st of January next.

" 50 machines for thrashing out the seed of flax, at 2*l.* 10*s.* each.

" 500 machines for breaking the flax and hemp, at 4*l.* each.

" 100 second, or cleansing machines for ditto, at ditto.

" 30 sets of refining machines with rollers, each set containing 6 machines, so connected as to be turned by one person, at 42*l.* each set.

" 24 refining machines separate, at 7*l.* each; making in the whole 204 refining machines. The prices are in British money.

" Mr Lee to deliver in Dublin, or any other places which shall be appointed, being post towns, one half of the breaking, cleansing, and thrashing machines, within six weeks from the 1st of August instant, and one fourth before the 1st of November following, and the remaining fourth before the 1st of January, 1816; and one half of the refining machines before the 1st of October, and the other half before the 1st of November next."

The Board also resolved, " That a bounty be paid to Mr James Lee, after the rate of 40 shillings for each breaking and cleansing machine, and of 50 shillings for each refining machine, British money, which he shall sell or dispose of in Ireland, for preparing hemp and flax, agreeable to the specimens exhibited for such preparation.

" These bounties to commence so soon as one tenth of the number of machines ordered on this day to be purchased from Mr Lee shall be delivered, and to be continued for three years from this day,"—under certain conditions expressed in these resolutions.

The machines purchased on account of the Board are to be lent to dealers in linen and bleachers, whose names are specified; and also to a number of landed proprietors in different parts of Ireland.

To complete these praiseworthy exertions, the Board also ordered, " That 500 hackles be purchased, to be distributed with the machines granted, or to be granted; the hackle being necessary to complete the series of the machines, and to prepare the flax for manufacture."

FOR THE FARMER'S MAGAZINE.

Account of the Agricultural State of the Netherlands in 1769.

At this time, very few farms in the particular province of Flanders exceed twenty-five British acres; some, indeed, are much less, and do not consist of more than ten. The common run is about twenty; and of such a one I shall endeavour to give some account. A Flemish farm of this size has perhaps as much building on it as may cost the landlord, at first erecting, 150*l*., which is supported by the tenant without any allowance, except of such materials as may chance to grow on the premises. The rent of these twenty acres may amount to 30*l*.; the Queen's tax being generally two vingtiemes, the same as our land-tax at two shillings aid. The stock consists of four or five milch cows, as many heifers, and a much greater proportion in pigs and poultry; but never more than two horses, which are esteemed sufficient to draw a plough even in lea-land. Sometimes one will answer the purpose; for, at all events, they take care not to be overstocked with horses, as they are the greatest expense of all cattle, when kept without sufficient employment. The land of the Low Countries is naturally good, chiefly consisting of a sandy loam; and as the farmers are surprisingly clever in the manner of their manuring it, their crops are very great; so great, that a great deal of their land is made worth five or six pounds an acre; but, upon an average, the rent is not less than thirty shillings. When I tell you they are remarkably clever in manuring, it is necessary that I should explain that matter; for, though they have no sheep to pen, they seldom sow a second time without dunging. To be able to do this, they are extremely careful to collect the sweeping of their towns, public roads, and, above all, the scouring of hills, and the sediment of ponds and other stagnant waters. They industriously mix all these with their cow, horse and pigeon-dung; adding, as occasion may require, a small portion of marl; and nothing can better suit their light land than such a compound. They also mix with it, whenever they intend to introduce grass-seeds with their Lent grain, some excellent turf-ashes, which they get very cheap, and in great abundance, from Holland, by means of water-carriage. Old rags, and the waste produced by the lintseed cakes, are likewise excellent upon this soil. In short, a Flemish farmer is busy all the year long in collecting manure; and it is incredible what a heap he gets together, merely by care and attention to that particular. Indeed, he has one great encourage-

ment to do this over farmers in England. The farmer with us, who is generally careless in this article, is still more so the last year of his lease, or term of holding his land, as he has no benefit from what he leaves behind him. But the Flemish farmer is equally attentive to make as much the last as the first year, being obliged to leave a certain stipulated quantity; and what he may have acquired over and above, he is paid for by the next tenant, according to its value. This is an established rule, and of infinite utility. Out of twenty acres, about fifteen are sown with corn; the remaining five are reserved for pasture and hay; and though they have so small a reserve for so considerable a stock of cattle, they find, by experience, that it is sufficient; for clover, and all sorts of grass common in England, are so forced by the Dutch turf-ashes, which fatten without overheating the land, that it is common to have two good cuts in the course of a summer. After the land has rested one year, and is fed close, or has given up its second crop of hay, the dung is laid on; and in October, they sow their wheat as with us, and the second year their Lent grain: Or sometimes flax the first year, instead of wheat, and oats the second, instead of barley. Flax, in this country, is a capital article, and is supposed to produce at least twelve millions of florins, or one million of pounds sterling a year. They find, by experience, that this article cannot be sown above once in seven years, upon the same piece of ground, without greatly impoverishing it; and, till they made use of turnips, it was not sown so often. The profit arising from the oil and flax is very considerable to the farmer; and the cakes produced by the seed are often the principal support of his milch-cows, when fodder is scarce. The lease of a farm is granted for three, six, or nine years. The farmer can give it up at either of these periods, on eighteen months notice; but, if he pays his rent, and fulfils his covenants, the proprietor cannot turn him out till the nine years are expired.

As it would be unfair to state this clever system of husbandry, without showing every advantage it has on its side more than we have, it may not be amiss to say a word concerning the character of a Fleming of the lower class, in order to see how peculiarly he is adapted to this employment. It is generally known and observed, that the people of this country are of a very saturnine cast and complexion, and therefore the better formed for domestic occupation. They have no curiosity for travelling beyond the limits of their business; no thirst after unprofitable knowledge, nor propensity to incur any unnecessary expense; and, above all, such a total dislike to the profession of arms, that, though the country is so populous, the Queen is never a-

ble to draw any recruits out of it, and is frequently obliged to have recourse to French Flanders and Lorrain, in order to keep up the limited number of ten thousand men only, which are appointed to garrison the Netherlands. Upon the whole, a Flemish farmer is highly calculated to prove useful to his landlord, to his family, and to his country. He rents, by choice, one of the farms before mentioned, as his views are no further extended than to the comfortable support of his family, being never blinded with the ambition of growing rich. As he calculates upon industry, and not upon chance, he seldom deceives himself or his landlord; and rarely falls short in his expectation. Luxury, which is so shamefully given into by our English farmers, has not yet got any footing among the Flemish. They live with much simplicity, and, in general, with great sobriety: that general equality reigns amongst them which is the very soul of population. I once saw, at a religious ceremony (a jubilee) at Hall, near Brussells, at least ten thousand of these husbandmen, so apparently equal in appearance, so uniform in their conduct and manner of living, that they seemed one and the same family. This general equality, and new mode of agriculture, account for their astonishing population; for, as industry is their sole support, they are benefited, instead of being distressed, by the increase of their families. A father finds his account in the help of his children; and the young people find their advantage in marrying, as they can live above want and misery, and upon a footing with the rest of their neighbours; and, as there is no expectation of a fortune on the one or the other side, there is no clog to their union. They marry; and, if they have but health, are the happiest people living, trusting alone to their industry for every resource. This stocks the province of Flanders with inhabitants in a greater proportion than perhaps any other part of Europe; for it is computed that there are one million eight hundred thousand souls in the Austrian Netherlands; and furnishes that abundance to be found in their public markets which are the pictures of plenty. The father or son sells the corn, hay and cattle; the mother or daughter their poultry, and the produce of the dairy, and their flax. No foot is idle, no hand unprofitable. Let the weather be what it will, they are always employed in some kind of work. If they have nothing else to do, the spinning of their flax is a never-failing employment. Thus, experience seems to prove, that the cultivation of the lands thrown into a number of hands is the very life of industry, and must be the source of riches to any country. In the last war, the Imperial Crown drew such supplies from this country by taxes and loans, as are almost

incredible, considering the small extent of the country, and the want of trade; so that the strength of this country, it is visible, arises from the excellent regulation and management of their lands. You will please to observe, that I have chiefly confined myself, in this account, to the mention of Flanders, as that is the most extensive province, and led the way to these improvements. But the same observations may be applied, with very little variation, to Brabant, and the other dominions of the Empress Queen in this country. I am far from entertaining the presumption of supposing that this method could be put in practice with us, so as to produce general benefit; though I am convinced, from observation and experience, many particulars might be adopted with advantage, where the soil might be favourable to the experiment. *

FOR THE FARMER'S MAGAZINE.

Essay on the Origin, Progress, and Result of Statistical Inquiries in Ireland.

(Continued from p. 313, and concluded.)

While the British Government was employed in planting the escheated counties in the province of Ulster, the Irish pro-

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* Sir John Sinclair's late Publication having drawn the attention of British farmers to the long celebrated practices of the Netherlands, and the intercourse with that country being now open, it may gratify those who have access to know the present state of its agriculture, to compare it with its state almost half a century ago. The great object of the writer of the foregoing account, which was lately transmitted to us by a gentleman of Staffordshire, seems to have been to recommend small farms in this country, to which he ascribes many advantages which most of our readers will now think imaginary. We have therefore withheld some of the arguments and illustrations on this point. But it should be recollected, that the same sentiments were inculcated in Britain at that time by almost all our writers on Rural Economy. It seems probable that the farms of the Netherlands are now much larger than they were then, as Sir John gives calculations applicable to farms of 250 and 300 English acres. In the great care these farmers bestow in collecting manure, and particularly in the high esteem in which the Dutch ashes are held, Sir John's pamphlet fully agrees with the account of this writer; so that these ashes, so long in repute, have, in all probability, been well known in England many years ago. If

prietors, who had been dispossessed of these lands, are said to have caused a survey of the whole kingdom to be made out, marking the state of property in 1599, and substituting, on the map, the names of the proprietors for those of the town-lands. Copies of this map were carefully preserved among the Irish, who, to use the language of a late member of the Catholic Board, in his statement of the penal laws, consider all forfeitures as unjust; and that no competent power exists to deprive future generations of the possessions of their ancestors. Upon these grounds, however, their map of the state of property in 1599 becomes useless; for if all forfeitures are unjust, the possessors of property at that time were as much usurpers as those who obtained lands afterwards from Oliver Cromwell and King William. Nor would a more ancient map, of a similar kind, said to be still preserved among the Danes, be of more authority, though it is confidently reported, that the descendants of the invaders of Ireland in that country, still make regular wills and settlements, devising and securing to their posterity the property in their ancient Irish estates. The original map of 1599 was in great repute during the administration of Lord Tyrconnel, in the reign of James the Second; when it was resolved to repeal the Acts of Settlement and explanation. But on the final discomfiture of the Irish forces in 1691, it was carried to France; from which, on the eve of the Rebellion of 1798, a copy of it was transmitted to Dublin, and published by a bookseller in Bridge Street, under the title of 'Ortelius Improved.' The whole impression was bought up in a short time, as might be expected, of a document highly interesting even to many who had no hopes of recovering long forfeited property, by the evidence it purported to afford.

One circumstance respecting the families, contained in this interesting record of the possessors of Ireland, in the reign of Queen Elizabeth, is, that, of the whole number, scarce ten of them, British or Irish, are extinct at the present day; and that, in most cases, they occupy, as undertenants or occupiers, if not proprietors, the identical spots of ground which they called their own in 1599. The O'Kanes are to be found in Londonderry —the O'Donnellies in Tyrone—the Macmahons and M'Kennas in Monaghan—the O'Reillys, Plunketts, and Sheridans, in Cavan—the O'Ferrals in Longford—the O'Connors in Roscommon—the Blakes and Kellys in Galway—and the O'Briens, MacMahons and MacNamara's in Clare, &c. &c.

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they have been tried by any of our readers, we shall feel obliged by learning the result. It would appear that they are most commonly employed for clovers.—Cox.

Among the manuscripts in Trinity College, Dublin, may be found several surveys of Ireland, or some parts of it, as pointed out by Archbishop Nicholson, in his valuable Irish Historical Library.

And here it may be observed, that under a late act of Parliament, and by a commission founded on it, the public records of Ireland have, within a few years back, been investigated, arranged, and placed in a state of safety, in a tower erected for that purpose within the walls of the Castle of Dublin; and such farther means taken for the discovery and preservation of the rest of the Irish manuscripts and other records, ecclesiastical, civil and military, as will greatly facilitate the researches of future statesmen and historians; and in this most desirable work, a distinguished part has been taken by the secretary of the commission, William Shaw Mason, Esq. M. R. I. A. the ingenious compiler and publisher of the present Statistical Survey of Ireland.

The period between the plantation of Ulster, and the fatal rebellion of 1641, was peculiarly favourable to the prosperity of Ireland, which was alone impeded by the factious spirit of the Romish ecclesiastics urging the deluded members of their communion to the desperate attempt which they afterwards but too successfully made to extirpate those British colonies, with whom it were more to their advantage to identify themselves, in the pursuit of wealth and happiness, by the fair and quiet paths of honest industry.

Early in Lord Wentworth's administration, he manifested a disposition to apply his great talents and powerful resources to the civilization and improvement of the country committed to his care. In the year 1634, he endeavoured to provide a suitable maintenance for the established clergy, whom he found so sunk in that sloth and ignorance consequent on extreme poverty, that it was a common proverb among the native Irish, (which has been recorded by Bishop Bedel), that the King's priests were as ignorant and as lazy as the Pope's priests. For this purpose, he appropriated a considerable portion of the alienated property of the church to its original and proper use; and, amongst others, he persuaded the Earl of Cork, who was a man very much of his own disposition, to surrender tythes of the annual value of two thousand pounds per annum, a great income in those days, and an enormous sacrifice to the public interests of his adopted country, by an Englishman who had been the founder of his own fortunes in Ireland.

In the same year, this enterprizing Governor, caused an actual survey to be made of a considerable part of Ireland, since

known by the name of 'Strafford's Survey,' from the title afterwards bestowed on him. From the state of Ireland at that time, compared with its present state, after several thousand acres in each of the provinces have been recovered from bogs, woods, morasses and lakes, it is a remarkable instance of things going on in the old track, that our present county cesses and parish taxes are at this day allocated according to the Strafford Survey, as far as it goes (for it never was perfected), and, where it fails, by other surveys taken in a few years after it. In consequence of this, many of our baronies and town lands pay twice the acreable taxes that others do; and therefore, among our *desiderata*, and they are many, may be reckoned a *new and accurate baronial and parochial survey of Ireland*, taken by chain and compass, unlike the modern custom of multiplying new and beautiful, but grossly erroneous maps, from antiquated documents. Such is the rapid progress of agriculture here now, that a survey of this description would be necessary every ten or twelve years.

One permanent and highly important effect of a scheme devised and carried into effect by this great man, deserves to be remembered. In the course of his researches into the dormant resources of this fertile island, he had discovered that the soil of many parts of it was peculiarly fitted for the production of flax. He ascertained this important statistical fact, by experiments which he ordered to be made in various places; and time has amply proved the wisdom of the conclusion he drew from them. Finding the women of Ireland universally inclined to employ themselves in spinning, he determined to have them and their families trained in *the manufacture of linen cloth*; conceiving that, by due and judicious encouragement in it, they might undersell the French and Dutch in this article, instead of injuring the staple trade of their British fellow-subjects, by the establishment of the woollen manufacture.

To encourage the linen manufacture, the Lord Deputy himself embarked in it a capital of thirty thousand pounds; a large sum in those days. He *imported flax-seed* from Holland, and *brought weavers* from France and the Low Countries. The flax-seed produced an abundant crop; the people, particularly in the British colonies of Ulster, embarked in the manufacture with vigour. Wheels, looms, and all the other implements necessary for it, gave employment to others, not immediately engaged in it. Salutary regulations were prescribed for the yarn and cloth, which proved to be of a superior kind, and had a rapid sale. The Irish emulated the industry of their neighbours, and partook of the benefits of it; when the dreadful rebellion of 1641,

and the subsequent civil wars, again desolated this devoted country, as it was just emerging from poverty and barbarism.

The forfeiture of land in Ireland, during the reign of King Charles the First, and the usurpation of Cromwell, led to new surveys, and gave opportunities of recruiting the British colonies in it. So early as the 24th of February 1642, whilst the rebellion was raging, proposals were made to the Parliament of England for the speedy raising of money for the reduction of Ireland. These proposals, which are preserved in Rushworth's Collections, vol. X. p. 395, were, that to such persons as should be willing to advance money for that service, should be allotted, according to a certain proportion, the rebels' lands that should be confiscated; which was approved of by both Houses, and an act passed accordingly, to which the King gave the royal assent. Two millions and an half of those acres which should be forfeited, were, by this act, to be assigned and divided amongst the adventurers after the following proportion; bogs, woods and barren mountains cast in over and above.

For each adventure of 200*l.* one thousand acres in Ulster.

Ditto	of 300*l.*	ditto	in Connaught.
Ditto	of 450*l.*	ditto	in Munster.
Ditto	of 600*l.*	ditto	in Leinster.

To be held in free and common soccage of the Crown, at one penny per acre, English measure.

These proposals were accepted; and, though a great part of the money thus raised was diverted by the ruling party to other purposes than those originally intended, the claims to the land remained secure to the adventurers who had subscribed for them; and, with the lands on which Cromwell had given debentures to his officers and soldiers, when the Irish rebellion was finally suppressed, were confirmed to the possessors of them under these titles, by the act of settlement, soon after the Restoration of King Charles the Second.

One of the purchasers of some of these forfeited lands was Dr Gerard Boate, brother of that learned and eminent physician, Dr Arnold Boate, the friend and correspondent of Archbishop Usher. Gerard came to Ireland in the situation of physician to the newly erected state or commonwealth, in the latter end of the year 1649. On his arrival, and purchasing a share of the forfeited lands, he became very inquisitive after their improvable state; and, in his inquiries, received considerable assistance from his ingenious brother Dr Arnold Boate, who had lived eight years in the same profession in Dublin, and had frequent calls into most parts of Leinster and Ulster in the way of his practice; all of which opportunities he used in acquiring a knowledge of the natural history of the country.

With this assistance, and some other helps, Gerard, who died soon after he settled in Ireland, left his friend, Mr S. Hartlip, a work which was afterwards published under the title of *Ireland's Natural History*; a work, says Mr Hartlip, in his prefatory letter to it, excellent in its kind, as not only full of truth and certainty, but written with much judgment, order and exactness.

After the rebellion, a general survey of Ireland was made, under a commission issued by the Lords Justices. This was called *The Civil Survey*, to distinguish it from one made by the military power about the same time; and Petty's subsequent survey being laid down by chain and scale, was called *The Down Survey*, to distinguish it from both. In the year 1652, Dr William Petty was appointed physician to the army in Ireland, where he was afterwards state physician to three successive chief governors, Lambert, Fleetwood, and Cromwell; which lucrative situation, together with his great practice in the city of Dublin, raised him to considerable affluence. Being also an adept in mathematics, he was a complete master of the useful art of surveying land; and, finding that the lands forfeited in the rebellion, and allotted to the soldiers for suppressing it, had been very carelessly and defectively measured, he made such representations to Oliver Cromwell, on this important subject, that, in the year 1654, he obtained a contract to make a new survey of these lands, which he finished with such accuracy, his biographer informs us, that the real value of every estate, not under sixty pounds *per annum*, was exactly ascertained, and maps of the whole were drawn up by him. By this contract, he is said to have gained ten thousand pounds; and it appears, upon record, that, in the year 1655, he had surveyed *two millions eight hundred thousand acres of forfeited improveable land*, part of which he had divided among the soldiers.

On the restoration of King Charles the Second, Dr Petty went to England, where he was very graciously received by his Majesty, who conferred on him the honour of knighthood, granted him a new patent of all the properties he had acquired, and appointed him surveyor-general of Ireland, and one of the commissioners of the court established to settle the claims relating to the estates forfeited in this country. In the year 1662, the Royal Society was founded in England, and Sir William Petty was elected a member of its first council. In the Transactions of this Society, we find a valuable supplement to the statistical labours of Dr Boate: And a list of them (among which are Archbishop King's contributions) may be found in the Irish Historical Library.

Sir William Petty was one of the principal founders of this illustrious and patriotic Society, which, as Mr Addison observed of it, drew the attention and abilities of many men of brilliant and powerful genius, from the angry and deleterious pursuits of party, to study the arts of peace and benevolence, the happy results of which have been since felt in the improvement of the agriculture, navigation and trade, of the British Isles. It was at Petty's lodgings in Oxford that the philosophical meetings of the learned were held, which preceded the institution of the Royal Society. His *Verbum Sapienti*, and *Treatise on Taxes and Contributions*, have long been reckoned masterpieces in their way; and his Political Arithmetic has been the very grammar of the science of statistics and political economy; to which may be added, his Political Anatomy of Ireland, in whose prosperity he took so lively and successful an interest.

In the year 1684, Sir William Petty having made the improvement of the agriculture and commerce of Ireland subservient to the advancement of his own fortune, continued to proceed in his honourable and useful career. He set up iron works, and established a pilchard *fishery* in the county of Kerry, and promoted the establishment of *a philosophical society* at Dublin, in imitation of the *Royal Society* of London, of which he was President in that year; and, for the use of the infant society in Dublin, he drew up a catalogue of cheap and simple experiments, which he published with his *Supplex Philosophica*, a description of forty-five instruments requisite to carry on their Institution, which he afterwards sent to them as a present from London.

In 1681, he had published his Observations on the Dublin bills of mortality, baptisms and burials, houses, hearths, &c.; and, in 1685, a copperplate set of his Irish maps were published in Dublin, and sold at fifty shillings, and, in a few years afterwards, for double the sum. *His Political Anatomy of Ireland* made its appearance in 1691, four years after he had terminated his useful life. From this great and worthy man is descended the Marquis of Lansdown; and he has left on record, for the encouragement of others, in combining the permanent interests of the public with their own advancement in honour and wealth, the striking example of the establishment of an opulent and noble family from *the united efforts of ingenuity and industry, in one man*; who, from so small a beginning as *sixty pounds*, and, after being reduced to such penury in France, as *to be obliged*, as his biographer informs us, *to live for a week on two or three penny worth of walnuts*, made, in the fairest and most useful and honourable manner, a fortune, amounting, at his death, to *six thousand*

five hundred pounds a year in land, with a plain demonstrable improvement on it, to produce four thousand pounds *per annum* more; in addition to which, he left *upwards of forty-five thousand pounds in personal effects.*

The short and calamitous reign of James the Second was not only unfavourable to the progress of these improvements in Ireland, but proved nearly fatal to them all.

Soon after the Revolution, a considerable quantity of land came into the hands of Government, by the forfeitures of the deluded adherents to the abdicated monarch, and brought, as usual, a valuable accession to the British colonies in Ireland. The revocation of the edict of Nantz, too, was not without a beneficial result to Ireland, as well as to the sister country, being the means of sending us many opulent, ingenious, and industrious Protestant families, who have since risen to great eminence in a country long since remarkable for the most ample returns to the talent, industry and spirit, of those whom her great local advantages, and the mildness of our government, have, at different periods, induced to settle in it. Among the French families of this description, may be reckoned the Latouches, Saurins, Gleadowes, and many others.

Portarlington was built by a colony of these refugees, whose descendants are still to be found in it, and have, for the last half century, rendered it an invaluable seminary for the education of the Irish gentry.

Towards the end of the reign of King William, a period fruitful in men of genius and enterprize, *a Society of Gentlemen in Dublin* endeavoured, by a correspondence, to make inquiries into *the natural state of Ireland.* But whether it was, that this corresponding method was not universal enough to answer their purpose, or that they began to cool in their inquiries for want of a proper fund, the scheme, like many subsequent ones of a similar kind, dropped, with little more fruits than a few collections, which are preserved in manuscript, among Dr Gilbert's Collections in the library of Trinity College, Dublin.

In the year 1724, Dr Hugh Boulter, Bishop of Bristol, was translated to the primacy of Ireland. This active prelate found the agriculture of this country at a low ebb—trade declining—the Protestant religion drooping—and the coinage of the kingdom debased. In the year after his arrival, there was a severe famine;—a great part of the Protestant clergy, without parsonage houses, or glebes to build them on;—many parishes from eight to twelve miles long, with only one church in them, and that often at one end of the parish;—few market-towns to sup-

ply food;—*no farmers* from whom the necessaries of life could be procured; so that no clergyman could live without a moderate glebe: And such was the want of Protestant churches, and resident clergy, that many of the descendants of Cromwell's officers had gone off to Popery for want of pastors and places of worship.

In the year 1728, such was the want of silver in Dublin, that many who had occasion to pay workmen every Saturday night, were obliged to give four pence for the change of a guinea. Another severe famine occurred in the summer of this year; and such was the general poverty and distress, that several emigrations were made to America from Ulster, on an extensive scale. Into all these evils Primate Boulter made diligent inquiries, as appears by his State Letters; and being several times entrusted with the reins of government, as one of the Lords Justices, he lived to see most of them remedied, notwithstanding the perverse opposition he met with from a provincial party in the Irish Parliament. When he entered on his first preferment in the year 1724, the current coin of Ireland in gold, silver and copper, did not exceed four hundred thousand pounds. The charter for the Incorporated Society was granted at the instance of Primate Boulter. Dr Maule, afterwards Bishop of Meath, being a gentleman of good family and fortune, expended a great part of his estate in establishing this foundation. The children admitted into the schools founded and supported by this truly patriotic Society, are orphans, or the children of Popish and other poor natives of Ireland, who, from their situation in life, are not likely to be educated in the principles of true religion and loyalty.

To the end of the year 1738, it appears, by Primate Boulter's State Letters and Despatches, that Ireland was severely distressed *for want of tillage*; vast sums of money being sent out of it for *corn* and *flour*. *Trade* was also at a low ebb during this period, and English and other coins extremely scarce.

On the 14th of April, a body of noblemen and gentlemen formed themselves into *a Society for collecting materials for publishing the antient and present state of the several counties of Ireland.* This was afterwards called *The Physico-Historical Society*; and, at a Board held at the Lords' Committee-room in the Parliament-house, on Monday the 7th of May, Lord Southwell was elected President, Dr Edward Barry, Vice-President; and the members (one hundred and three in number) entered their names, and paid their subscriptions. Secretaries were nominated for each of the four provinces. A fund being thus raised, proper persons were employed to travel through the kingdom and make

observations, as appears by a Short Account of the Rise and Progress of the Society, published at the end of the first year after its formation.

On the 2d of December, 1745, at a meeting of the Physico-Historical Society, the Right Rev. the Lord Bishop of Meath in the Chair, Mr Charles Smith presented a proposal for printing *The Antient and Present State of the County and City of Waterford.* The work having been read over by a Committee of the Society, was approved of; and he was desired to proceed therein, which he accordingly did; and it was published in the course of the ensuing year, dedicated to the Earl of Chesterfield, who had condescended to become President of the Society. 'As the labours of this Society' (said Mr Smith, in his dedication of this book to the Lord Lieutenant) 'tend to the making *useful discoveries for the improvement of husbandry, trade and manufactures*, which may, in time, employ our poor at home, and *be an invitation to industrious foreigners to settle among us*, it is presumed, as your Excellency has the true interest of this kingdom at heart, the design will meet with your favourable protection.'

Mr Smith's History of Waterford is a favourable specimen of what this Society intended to publish of other counties; but, except the interesting and valuable histories of Kerry, Cork and Down, by the same able hand, we have no other fruits of their patriotic exertions.

On the 2d of April, 1749, *The Dublin Society*, which had been formed some years before, was incorporated by charter; the object of it was the *improvement of husbandry, and other useful arts.* So early as the year 1744, this Society had been a powerful instrument in raising the agriculture of Ireland from the deplorable state in which the beginning of the eighteenth century had found it; and, aided by the salutary laws relating to the linen manufacture, and by the vigilance of the Linen Board, had contributed much to the prosperity of our staple manufacture.

This Society is at present in a flourishing state. It consists of upwards of six hundred members, many of them of the highest rank and respectability in the country, and most of them proprietors of the soil, or possessed of a considerable interest in it.

Besides the premiums they grant for improvements in agriculture, planting, and breeding of cattle, &c. they have a complete and extensive botanical garden at Glassnevin, and maintain professors and lecturers on botany, agriculture, mineralogy, chemistry, and natural and experimental philosophy; with masters of the veterinary art, architecture, painting and engraving. They

have three stated general meetings in the year, and a repository and library at their house in Hawkins Street, which are to be removed to the splendid house they have lately purchased from the Duke of Leinster, near Merrion Square, in the most improved part of our metropolis.

In the year 1773, the Dublin Society issued statistical queries, in hopes of obtaining answers to them from the different parishes in Ireland. Only one return was made to them, and that was by Mr Charles O'Connor of Ballytra, which was communicated by Burton Conyngham Esq. to Sir John Sinclair, and published by him in the twenty-first volume of his Statistical Account of Scotland, with some observations on it.

On the 28th of January, 1786, *the Royal Irish Academy* was incorporated by letters patent, for the advancement of the studies of *science, polite literature, and antiquities.*

This Society has a large and commodious house in Grafton Street: Among the members of it are to be found many of our nobility, prelates, and most distinguished literary characters. The Statistical Account of Scotland appeared in 1791; and in a short time afterwards, the Royal Irish Academy sent statistical queries to the Irish parochial clergy. As a member of that Society, Dr Ledwich, the ingenious author of 'The Antiquities of Ireland,' considered himself called on to second their wishes, and drew up 'an Account of his Parish of Aghaboe, in the Queen's County;'—but no one followed the example!

On the 18th of June 1799, *the Society for Promoting the Comforts of the Poor* was instituted in Dublin. Immediately after the formation of this benevolent society, statistical queries were issued from it to different parts of Ireland; and among the returns to them, was one of considerable length and minuteness, from the writer of this essay, descriptive of the housing, food, clothing, habits, and wants of the peasantry of a populous district in the south of Ireland.

In 1800 and 1802, two volumes of Reports of this Society were published; containing, among other articles, accounts of friendly or agricultural societies at Cork, Castleknock, Cookstown, Castletown-delvin, and Castle-Eden; with an interesting description of the poor school and dispensary, founded at Killaloe in 1796, by the Lord Bishop of Killaloe, now Bishop of Derry, with the assistance of the late Mr Henry of Straffon, the proprietor of a large estate in that neighbourhood.

In the year 1806, the Dublin Society made a second and more successful effort to obtain a statistical survey of Ireland. They employed several intelligent gentlemen to draw up county surveys; and in two or three years, obtained returns from the

following counties, viz.—Antrim, Armagh, Cavan, Clare, Cork, Down, Dublin, Donegal, Kildare, Kilkenny, King's County, Leitrim, Londonderry, Monaghan, Mayo, Meath, Queen's County, Sligo, Tyrone, Wicklow, and Wexford. These have been since published; and though they have all a considerable degree of merit, the surveys of Kilkenny, Londonderry, and Kildare, have been considered the best of them. Mr Hely Dutton, the author of the Survey of Clare, published some observations on the Dublin Survey, and Richard Lovel Edgeworth, Esq. has collected materials for a survey of the county of Longford; but the remaining counties are not yet surveyed, though some years have elapsed since the publication of the surveys of these above mentioned.

Mr Shaw Mason commenced his arduous and important undertaking, by issuing Queries to the parochial clergy of Ireland about the beginning of the year 1813; and, prudently acting under the guidance and direction of Sir John Sinclair, the experienced and successful author of similar inquiries in Scotland, in the month of September following, he published 'a Reprint' of the Statistical Surveys of Thurso in Scotland, and Aghaboe in Ireland, which he transmitted to the clergy of Ireland as models, well calculated to give them at once a complete idea of the nature and utility of his inquiries: one of these accounts having been written by Sir John Sinclair himself; and the other, as already mentioned, by Dr Ledwich in 1796.

The result of the means, thus judiciously adopted by Mr Shaw Mason, in the application of which he spared neither pains nor expense, was the accumulation of materials for several volumes of his work, which are lodged in a department assigned for them in the Record Tower of Dublin Castle.

An interesting specimen of these has been presented to the public in the first volume, published by John Cumming, Lower Ormond Quay, Dublin.

On its publication it was favourably announced, and recommended to the public by almost all the public prints in Ireland, every one of them appearing, for a considerable time afterwards, ready to suspend the discussion of angry politics, and to join with each other in hailing this great national undertaking as a pledge and an omen of the future peace and prosperity of our country.

G.

Maghera, September 7th, 1815.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Present Low Prices of Land-Produce.

SIR,

IT is too clear to admit of any doubt, that the complaints heard everywhere from the landholders and farmers of Britain, are generally well founded. The distress which meets the eye of the traveller in every part of the country, and of which every newspaper contains additional proofs, may be perceived extending far and wide, and operating upon most of the other classes; and there is every reason to believe, that the defalcation of the public revenue, the necessary consequence of this state of things, must soon force the subject upon the attention of Government. I should not suppose it too rash to say, that nine out of ten of all the farmers of Britain, have at this time no income from their farms, from which to pay the present oppressive property-tax, after discharging rent and other expenses; and, as to the fund from which rent itself should be paid, it certainly does not exist at all in most cases. If the estimates of the expenses of cultivation lately presented to the Committees of Parliament, or those offered in your Journal last year, are within so much as 10 per cent. of the real amount, it is evident that the whole rent of all corn farms let within the last ten years, must now be drawn from the farmer's capital; or, as there is reason to fear is the fact, many of this useful body of men must be in heavy arrears to their landlords, struggling by every means to avoid ruin, and liable to be crushed by the slightest effort of caprice or malignity.

It has been attempted to calculate the extent to which farming capital has been diminished within the last two years; but an approach to accuracy on such a question, is evidently unattainable. It cannot well be doubted, however, that in this period, a sum equal to the whole rental of the corn lands of Britain, has been withdrawn from that fund, which had been formerly destined to the cultivation of its territory. The crops of 1813 and 1814 can hardly have done more, speaking generally, than met one year's rent; and the present prices of crop 1815 certainly will not leave any surplus at all, after defraying all other charges.

The profits which some years of high prices had put into the pockets of farmers, were generally reinvested in the soil; labourers were fully employed at adequate wages; and the public at large now reap the benefits of their speculations, in the reduced prices of produce; so that this temporary influx of ca-

pital towards agriculture, though the cause of it occasioned some distress at the time to the lower classes of tradesmen and small annuitants, has had an evident tendency to augment national wealth, and ensure national independence. But very different consequences must follow the destruction of farming capital. What is lost by farmers, is not transferred to the other productive classes, to be afterwards forthcoming for the general interest. On the contrary, the first effect of their embarrassments, is to throw idle a vast number of the most useful labourers; a general stagnation in every branch of the home trade immediately ensues; the quantity of the products of the land is rapidly diminished, and a scarcity of food as well as of employment, must be felt in a few years. No part of the community gains in proportion as the farmer loses; and the gain, such as it is, is soon overbalanced by frequent returns of scarcity and dearth, when the people come to depend again on foreign supplies.

The evidence given before the Committees on the Corn Laws, fully supports this view of the case; but as their Reports have been already given in your Magazine, I shall only beg leave to refer your readers to the passage, (on page 445, vol. xv.) of the Report of the Committee of the House of Commons.

Though the present depression of prices must necessarily affect tenants in the first instance, more than any other class, yet it cannot be doubted that landholders generally now feel the difficulties of the times in no small degree. Many of them, it is well known, are always in debt; and in ordinary times, the ample security they can give to the lender, makes it easy for them to obtain money, at or below the legal rate of interest. But, now that the loans to government have absorbed a great part of the floating capital of the country, and while the public funds afford considerably more than the legal interest, with every prospect of soon yielding a still higher profit on the capital itself, when the stock is transferred, it is a matter of the utmost difficulty to borrow any considerable sum, even upon landed security. It is still worse with the possessors of entailed estates in Scotland; on which, at this time, notwithstanding the act 1770, no great improvements can possibly be attempted; nor can the money borrowed formerly on the faith of that beneficial statute, be either withheld or repaid without very great sacrifices on the part of such landholders. Hence usury, in point of fact, if not in law, prevails to an enormous degree in the shape of redeemable annuities, and other devices; and monied men find little difficulty in procuring twice the legal interest from borrowers of undoubt-

ed responsibility.—Add to this, rents ill paid; large tracts of land thrown up, and, in the hands of proprietors, nearly unproductive; direct taxes, equal to a fourth or fifth of their nominal rental, and the price of every article, food excepted, as high as ever. When estates are, from these causes, forced into the market, purchasers can seldom be found; and the value, when a sale can be effected, is brought down from 28 or 30 years purchase, to scarcely more than 20. It would be easy to point out several instances of large estates having been sold of late at less than two-thirds of the price that had been refused for them a very few years ago.

Another class, somewhat distinct from these two, consists of those men who have speculated, often perhaps with very inadequate capitals, in the purchase of land; and some of whom have expended large sums on its improvement, in the hopes of soon reselling it at a profitable advance of price. Not only are such hopes utterly frustrated, but these men are now glad to withdraw, after sustaining serious losses, from this unprofitable branch of trade. Speculations of this kind, indeed, like those of farmers themselves, are often viewed with jealousy;—and to the prejudiced and inconsiderate, their unfortunate termination affords matter of triumph, instead of occasioning regret. Common-place remarks on the folly of speculation sound from every empty pate; and every stupid face tries to assume the sneer of contempt, or the gravity of profound calculation. But men of reflection will instantly acknowledge, however much they may disapprove of hazardous adventures, that success is not the invariable result of prudence; and that if no measures were ever undertaken, until all the chances should be estimated, and the fortunate issue appear so extremely probable, as to approach to a moral certainty, all those enterprizes would be at an end, to which Britain owes her high rank among the nations of the world.

It is unnecessary to fill up this hasty outline of a picture, by no means overcharged. Complaints must be as troublesome as they are useless, unless relief be practicable; and it is more manly, as well as more wise, to submit in silence to inevitable evils, than to add to their weight by clamour and impatience. But before giving way to utter despondency, it might be well to inquire into the causes of the present state of things—the means by which the pressure may be alleviated—and the ultimate prospect of its continuance or removal. I shall venture to offer a few hints on the first of these questions only.

If it were not with a view to escape the cavils of some of your

town readers, it would not be necessary to state, at the outset, that the low price of land-produce ought not to be deemed a subject of complaint, viewed by itself, or without any reference to the present artificial condition of the country. On the contrary, if such a thing were possible, it would be highly desireable that the prices of provisions in Britain should be no higher than in other parts of Europe. When taxes, and the prices of every thing, had been brought to a corresponding level, the agricultural classes could have no reason to complain: But as it would be just as reasonable to expect the rich man to descend from his carriage, and trudge through the mire clothed in rags like the most wretched outcast of society, no man whose mind is not sadly perverted by the love of system, can hope, that this equalization of prices will ever be obtained, but at the expense of our national wealth and industry. Farmers do not complain that corn is cheap, but that every thing else is dear,—not only rent and labour, but every thing they have to purchase; and that such burdens are imposed on them by the State, as they were hardly able to bear when their commodities sold at double the present prices.

The average price of wheat in Scotland, notwithstanding what is stated in the monthly returns, does not at present exceed 46s. per quarter; and an inferior kind, though by no means very poor, can be had at 40s., or even less. Now, the lowest estimates make the expense of raising wheat 80s. per quarter; and others go so high as 96s. Will the abundance of this, and the two last crops, account for this extraordinary fact; or are there not other causes in operation? It might have been easily foreseen, that the high prices of some late years could not be, and ought not to have been, supported in time of peace; it might also have occurred, that the improvements carried on in Britain and Ireland, during the last 25 years, would render the supply equal to the demand in ordinary seasons, after the great purchases of Government were at an end; but surely no previous calculations could have arrived at the present results. Five years ago, we imported about a million and a half of quarters of wheat, after a crop very little below an average one; and now, at half the prices of that year, sales are effected with the utmost difficulty. Has our consumption diminished, or our growth increased so much in that short period, as to account for this great change? After making the most ample allowance under both these heads, I cannot but think that your well-informed readers will agree with me in answering this in the negative.

Two other causes, besides the increase of tillage and the diminished consumption of a time of peace, seem to have contributed in no small degree to produce the present difficulties of agriculturists.

1. The importation of foreign corn for more than a year after very low prices had clearly indicated the abundance of our own produce. Had the late corn law passed in 1813, there is every reason to believe that the fall of prices would have taken place more gradually. I do not mean to say that the Report of the Committee of the House of Commons in May 1813, ought to have been acted upon to its full extent. Sir H. Parnell and his friends certainly defeated their own object by the extravagance of their Resolutions. But the subsequent Resolutions of the House itself were of a very different character, and unquestionably should have been forthwith carried into effect. By these, the import rates were made to depend upon the average prices of a certain number of years preceding. The fall in the price of corn would thus, in all probability, have proceeded no faster and no farther than the fall in the rate of rents, of labour, and of other commodities; or in other words, the rise in the value of money, so confidently expected from a return to cash payments, would have extended more equally over all the mercantile transactions of the country.

It may be said, indeed, that the quantity of grain imported last season, was too inconsiderable to produce much effect upon our prices; and, in a time of scarcity, this would certainly be true. But the case is very different when the price of wheat had previously fallen to little more than 60s. per quarter, as was the fact before the Ports were closed last spring. At such a time, a few hundred thousand quarters of wheat forced into the market from France, under charges of freight, &c. not higher than in our own coasting trade, could not but produce a much greater effect than the quantity, taken by itself, would lead a stranger to the corn-trade to expect. Let those who will not admit this, turn to the speeches in Parliament, in the early part of last Session, when it was confidently stated by some of the most distinguished members, that British wheat was generally of so inferior a quality, that good bread could not be made from it without a mixture of foreign wheat.

But the effect of these importations is allowed by the best informed corn-dealers to be still operating on the British market. Notwithstanding some exportation of late, it is understood that about half the stock of foreign grain imported last year, and in the beginning of the present, is still in the public stores, hang-

ing over the heads of our merchants, and effectually deterring them from purchasing to any extent in the home market.

2. Another cause of the present low prices of all sorts of land produce, is the diminished amount of the circulating medium. Whether it be that the Banks are preparing for a return to cash payments, or that they find it more profitable to buy Stock than to discount bills, certain it is that their usual accommodations are now withheld, even from those whose credit is not disputed, and still more generally in the country than in large towns. The Bank of England appears to have reduced its issues by about three millions; and this has probably occasioned a further reduction to four or five times the amount in the issues of the provincial banks. The necessity of raising money has accordingly forced sales at all events; and prices have therefore fallen in a much greater degree than the extent of the supply, compared with the demand, would have otherwise occasioned.

I should only fatigue your readers, and expose myself to the ridicule which has been in many instances of late the deserved fate of political prophets, were I to speculate upon future prospects. To say that every thing will find its level, and that all this is nothing more than was to be expected, is to speak without any definite meaning. We might as well be told to sit down quietly, and witness the collision of interests among the different states of Europe, the powerful oppressing the weak, and one huge empire moving rapidly onwards to supreme dominion, and spreading everywhere throughout the civilized world, her own atmosphere of darkness and despotism. Parliament very properly afforded relief to our merchants and West India planters in the time of their distress; and if some measures of the same kind could be made to apply to the landed interest at present, justice requires that the attempt should be made with the least possible delay. By the waste of the capital of these Bodies, sugar and muslins might have been higher priced for a time; but, by the destruction of agricultural capital, this nation, now, for the first time for half a century, independent of foreign supplies of corn, will see her fertile fields return again to barrenness, her labourers become idle and desperate, and the necessaries of life purchased from strangers, perhaps enemies, at the price of famine, and, it may be, of national degradation.

I am, &c.

Oct. 1815. AN OLD CORRESPONDENT.

BRANCH II.

Review of Agricultural Publications.

Art. I. *General Report of the Agricultural State, &c. of Scotland, continued from page 361, and concluded.*

Chap. XIV. is on Live Stock, a subject of great importance in Scotland. It is divided into 4 parts; 1st, On Cattle; 2d, On Sheep; 3d, On Horses; and, 4th, On Swine. The inferior kinds of live stock, such as goats, rabbits, poultry, bees, are deemed of too little importance for a place in a General Report: But the same observation might have been made as to swine at some distance of time backward; and yet, in many parishes of Dumfries-shire, they now return more than sheep; and the sales in that single county (besides consumpt) exceed 50,000*l.* a year. Beneficial practices, conducted by individuals, and profitable to them, if properly known, may be of public use.

Mr William Aiton, and others, are the writers of this chapter. Very proper observations occur as to live stock in general, besides the four parts, in which each kind is particularly mentioned. The cattle of Scotland are described according to their several breeds, viz. the Highlanders, Galloways, Horned beasts of Aberdeen and Fife, mixed varieties of the south-eastern counties, and the ancient Wild breed. We think the Dairy cattle of Ayrshire might have been mentioned as a particular breed, and have doubts how far the distinction was necessary between those of Aberdeen and Fife. The wild cattle, it appears, are still preserved in the parks of a few men of fortune; and we have seen occasionally a domestic beast very like them in the white colour, and black ears and nose. The large farmers in the head of Roxburgh possess folds of cows of the short horned and speckled breed, red and white, but handsomer formed than those of Ayrshire; and the authors of this chapter seem not to have known of these.

Many excellent observations are to be found with respect to the breeding and rearing of cattle, and a good deal of useful matter as to their produce. No person doubts, that in the corn districts, where the soil is heavy, potatoes do not answer very well, being liable to the curl; but the authors seem to extend much too far their preference of the turnip in feeding cattle.

The numbers of cattle are stated in a table, which has been thrown into the Appendix. If those of Aberdeenshire be near the mark, those of Lanarkshire (which are not much above one fourth of the computed numbers in Aberdeenshire) must be very far below it: We suspect there are more cattle in the Stewartry of Kirkcudbright than in Fifeshire, and yet they are stated at no less than 20,000 fewer. Inverness-shire certainly contains more cattle than appear opposite

to it in these tables, and so must Renfrew and Dunbarton shires. The total numbers in Scotland, it is thought, may be computed as approaching to 1,200,000; whereas they are stated in these tables only at 1,047,142. On the other hand, the produce arising from cattle, including all the returns, appears too high stated at 6*l.* as the average of Scotland: It is nearly the average in the southern districts, but appears much too high for the Highlands. We suppose the most probable average there to be 4*l.* each; and that 5*l.* is the most likely computation over Scotland;—giving six millions Sterling as the gross returns from cattle.

Part II. on Sheep, contains a view of the original, or most ancient breed, with dun faces and knees; the Heath or Black-faced, the Cheviots, the New Leicesters, and some foreign breeds. Nearly all the great sheep walks, or mountainous pastures, are now divided between the Black-faced or Heath breed and the Cheviots; both of which answer for breeding stocks, with a view to considerable sales both of sheep and wool: The black-faced breed answers best for bleak heathy pastures, their lambs having some covering of wool, and being hardier to resist severity of weather without shelter: The Cheviots answer where there is proper shelter for the naked lambs, and where the hills are green, and the bracken prevails. The old native and small breed, with dun faces and knees, has very seldom, if ever, met a fair trial; but, when the mutton and wool are meant for use in the same district, and not for export, it is perhaps equal to any other breed whatever: We consider the Shetlanders as a different race entirely, though in this work supposed the same. It is not a matter of doubt, that in low and rich fields of improved pasture, and where the benefit of clovers and turnips can be given to sheep, the New Leicester, or Bakewell race, are the most eligible; as they soon arrive at perfection, return liberally in fat and wool, and are more domestic, and easier confined than any other sheep: We also think, that until this breed is more generally reared, mutton will never be in such plenty, adapted for the use of labourers in all professions.

There is a very remarkable error introduced into this work, relative to the numbers of the sheep of Scotland, which are stated, in all, considerably below three millions! In examining the grounds of this computation, we find it reported, that in the county of Inverness (for example) the number is 50,000; whereas the fact is, that we had occasion to see a particular enumeration made of the sheep of one single parish in that county, above twenty years ago, when the number was less than it is at present, and yet exceeded 70,000! —An error of such enormous magnitude, by which the sheep of a whole county are stated twenty thousand fewer than the actual stock of a single parish in that county, has perhaps hardly ever been committed before. We have good reason to think that the sheep of Scotland are nearly four times as numerous as they are stated in this General Report, amounting in all to eleven or twelve millions. The average gross returns of these may be stated about

ten shillings per sheep, making in all about six millions Sterling; a sum equal to the returns from cattle.

On the distempers of sheep and cattle, some abbreviated observations occur, of an ordinary character in point of merit. The rot in sheep is one of the most serious of these distempers; and among the remedies, we find several things recommended, but not a word of the salt marshes, or of common salt given in doses; though the former as pastures, and the latter as medicine, have always been considered as most particularly safe and efficacious in this destructive malady. Omissions in a general work may admit of easy pardon; but the case is different when gross errors appear in matters of fact.

In the IIId part, which relates to Horses, the authors point out three distinct Scotish breeds;—the Highland, the Galloway, and the Clydesdale. We think it evident as to the two former, viz. the Highland Sheltie or Garron, and the Galloway, that their small size has been in part occasioned by their habits of living on the common pastures without shelter or extra feeding; for in the same countries, horses of good, and even large size, may be daily seen, and may also be reared, when the benefits of shelter and proper feeding are given to them. The Clydesdale horses, we apprehend, would not be superior to those of Galloway, if left to the common pastures; and we see no reason to give the common draught horse a name borrowed from any particular county, as he is common throughout the whole kingdom. It has been often observed, that the largest and heaviest is not the best horse; and that, even for farm labours, a proportion of blood, or at least a dash of the riding horse mixed with the character of a common draught horse, has been found to be of use.

A comparison between Horses and Oxen employed in husbandry appears in this work. We have no objection to the use of oxen in performing a portion of farm labour; but as they never will, or can, supersede the use of horses, we agree in opinion with the authors, that the tax imposed on horses used in husbandry is most improper and injurious, and that it ought instantly to be repealed.

On the distempers of horses, a few judicious observations are introduced. We are of opinion, that by forcing young horses too early, and by rich feeding, into bulk, and then putting them to work too soon, their constitution is greatly injured. The coarse-fed Highland horses very seldom are troubled with grease, farcy, or colic. Young horses ought to be fed on rough and plentiful, but coarse pastures; and they should lie out through summer, to render them hardy, and should be sparingly fed with corn while under age.

Of the Mule and Ass there is little mention, though certainly they might become useful to a much greater extent and degree, if they were properly attended to; as the mule can bear much labour, and the ass (as a donkey) is very useful in England, at very little expense.

The IVth Part is on Swine; which, though inferior as an article

of live-stock, are increasing in point of importance to the public. This kind of stock may be laid in at little expense; fed much on offal; and brought soon to maturity. The pork and bacon consumed at home are of great use; and the returns for bacon cured and sold are considerable. It is always an object of importance to the farmer to increase the quantity of his farm-yard manure; and no animal does more in this way than swine, properly fed and littered. The wild boar was found at one time in the forests of Scotland, supported by grass and acorns chiefly; and from this source we must suppose the aboriginal breed was derived. The improved breeds of Berkshire and Bedfordshire are not very common in Scotland, where the most frequent sort is the white, with long ears, which come to a large size when well fed and long kept; but the small black pig with short ears, which becomes very fat at a small expense, is perhaps the best known.

The swine husbandry is connected with that of potatoes, and might probably return a million and a half in sales, and more than half a million for home consumpt, among those who rear them, if it were equally attended to in other counties as it is in Dumfriesshire. The returns for poultry are not, on the whole, so insignificant as many suppose, because great numbers are concerned in them; but in many instances the damage they do may be said almost to equal the returns. To the successful rearing of bees there are natural limits; for they may overstock, or they will perish in a climate and situation which are not suitable: Still, however, we do not think that bee-hives are yet to be found at all in proportion to the number which might be kept, if proper attention were generally bestowed on them.

On the whole, we suppose that the gross returns from live-stock of all descriptions in Scotland, may be fairly stated at about fifteen millions Sterling yearly; and we have little doubt that by improved skill and attention, they might be raised, according to the common prices, to twenty millions.

It is of little use to the farmer, to tell him the number of acres in mountainous pastures, because he never judges by this, but according to the numbers of the live-stock, and their value, taking into account the risk of losses, and the prospect of markets. But it may be a question of some interest, what extent of the lands in Scotland is occupied in raising grass and other produce for the maintenance of live-stock. The data contained in this Report, and which bear on this question, are not to be considered as exact; but they may be viewed as approximating towards correctness: And, according to them, the authors are of opinion, that no less than nine-tenths of the surface are occupied with produce for the subsistence of live-stock! This proportion out of the total surface, (which is rudely estimated at nineteen and a half millions), would seem too large, considering how much of that surface is occupied for other purposes. But there appears to be no doubt, that at least fifteen millions of

acres are applied to the raising of subsistence for live-stock; and it is a curious coincidence, that the gross returns may be stated at fifteen millions Sterling, or about one pound per acre. This remark needs explanation perhaps; for the gross produce is very different from the land rents; and the total returns on the low pastures are above this average, while the lands in green crops and richer grass return many pounds, gross, per acre: but, on the other hand, many of the good mountain pastures do not yield of gross produce above five shillings, and others not even one shilling per acre.

Chap. XV. has the title of Rural Economy, and the name of Mr Robert Hope, farmer at Fenton in East Lothian, prefixed. It contains an account of household servants, labourers—cottages—the mode of living among cottagers—the relative prices of labour and of provisions—the price of fuel as affecting labour—and the expenses of cultivation. Some of the contents may be useful at present, and the tables at a future period. Opinions differ much as to the relation which commonly holds between the prices of labour and of provisions. Experience has discovered, that an immediate fall in the former does by no means follow a fall in the latter; but that labour falls, when the farmer, owing to the fall of produce, employs fewer hands, which is often a work of some time.

Chap. XVI bears the title of Political Economy, and has the name of Mr Walter Thom as one of the authors. It is divided into sections on the state of Scotland with reference to Manufactures, Commerce, the Fisheries—Roads, Bridges, Canals, &c.—Weights and Measures—Fairs and Markets—the Laws relative to Provisions—the Necessitous Poor—and the General Population. A great extent of useful and variegated matter is contained in this part of the work; but the sources of information do not always appear, and, of course, the accuracy, in many particulars, must be viewed as doubtful. We think it apparent, that the woollen manufactures of Scotland can never be placed in a fair and thriving state, until there be established houses in the country for the correct and skilful assortment of the raw material. The best mode of providing for the poor, we take to be that which obtains only in a few parishes; allowing the ordinary collections and funds to answer ordinary demands, and assessing only to meet emergencies; thus avoiding every thing like regular pensions, and encouraging industry and economy. The act of council 1693 (which, with other acts of the Privy Council of Scotland for the support of the poor, obtained the sanction of Parliament in 1698) has not been correctly quoted in this work; as that act makes no distinction of two classes of the poor, and ordains one half the collections at the churches to be applied to their support, but leaves the other half unappropriated, not for occasional demands, as has been advanced here and elsewhere, but in order to cover the necessary expenses to be incurred in the public worship of God, and in maintaining due order in the church, and collecting and appropriating the alms of the congregations agreeably to the consuetude of Scotland, and the necessity of the case. We consider the fashionable strictures on population as being liable to some doubts in various important points. The checks to

which population is expoſed, may be fairly ſtated; but there are others not quoted; and the ratio of increaſe depends in ſome degree on moral as well as phyſical cauſes, many of which cauſes, both moral and phyſical, are not taken into account. We conſider the progreſſive increaſe of population as here ſtated according to a geometrical ratio, together with the increaſe of plants, and means of ſupport only in an arithmetical ratio, as being almoſt wholly inapplicable to the actual ſtate of mankind; for, in point of fact, there exiſts no ſuch proportion either in the one or the other; nor does experience eſtabliſh any ſuch ratios, but merely a leſs or greater increaſe in the population of any country, partly depending on the ſupplies of food, and very much on a variety of other circumſtances.

Chapter XVII. is on the Obſtacles to the Improvement of Land, and bears the name of the Reverend Dr Rennie. The negative obſtacles enumerated refer to capital, or leaſes, communications, or police, or to deeds of entail. At the preſent time, the capital veſted in agriculture is waſting away like melting ſnow; and no public meaſures are taken for the abolition, or even the modification of entails, under which there is not, and hardly can be, afforded to the farmers, encouragement proper to lead them to make improvements. Among the enemies which prove injurious to the farmer, are enumerated various kinds of inſects, birds and quadrupeds, with obſervations relative to their habits, and the modes of deſtroying them.

The XVIII. chapter is on the Agricultural Societies of Scotland, and has been written alſo by Dr Rennie. We find ſections on the origin and progreſs of theſe aſſociations—on their names and diſtricts, and on their general objects—the rules under which they meet and act—the advantages that reſult from them—and the means of improving them. Among the general objects of theſe agricultural ſocieties, we find ſeveral that ſeldom enter into the practical views of moſt part of them; and, among the means ſuggeſted for the improvement of theſe aſſociations, it is recommended to eſtabliſh a correſpondence with the two greateſt of our general Societies, the Board of Agriculture and the Highland Society of Scotland. Such a plan we recollect to have ſeen before, in the ſhape of a propoſition to the laſt named Society, from one of its members; and we think it might be carried into execution in ſuch a way as to be attended with very good effects.

The name of Sir John Sinclair appears at the head of the Concluſion to this General Report; and the propoſitions which he lays down are, 1ſt, To promote the collecting and diffuſing of uſeful information, an object of radical importance to improved agriculture, and in which no gentleman has been ſo eminently uſeful as Sir John Sinclair himſelf; 2d, To give a preference to domeſtic productions in the home market; 3d, To encourage exportation of ſurplus produce; 4th, To promote the cultivation of waſte lands; and, 5th, To encourage improvement, by opening up eaſy communications. All theſe are legitimate and proper objects of attention to thoſe in

power—and various others of almost equal propriety and importance might be added to them. We are not so clear as to the 6th proposition, relative to Corporations invested with power to make useful improvements, and to draw 6 per cent. for their outlay; and if entailed estates cannot be improved by other means, we think it evident that the rigour and bad consequences of entails ought to be done away by the Legislature, allowing debts contracted *bona fide* in actual improvements, to become a burden on the land itself. It is a serious truth, indeed, as noticed by Sir John Sinclair, that a burden of 800 millions of public debt, (which has been farther increased since he wrote in May 1814), imposes on the Legislature very important duties; and having the additional motives arising from an increasing population, and from the possibility of rendering more productive a large extent of land, out of above 20 millions of acres, now in a state comparatively waste. The Legislature of Great Britain will certainly not allow objects of such immense magnitude and commanding importance to escape their attention. This has become a duty still more urgent, in consequence of the present depressed situation of the farmers, and the rapid exhaustion of their capital, by high rents, taxes, and expenses on the one hand, and low prices and stagnant markets on the other.

A few tables are annexed to this work, most of which are interesting, and some of them pretty correct. The two volumes of Appendix also contain a considerable quantity of useful information; part of which, being clear and precise, might have been left, we think, with propriety, in the body of the work.

The return of peace to this kingdom renders these volumes greatly more interesting and valuable. An immense mass of arranged matter is presented to the public eye, most of which is as correct as could have been reasonably expected in a first attempt of such magnitude; and the remainder of which may be still improved and corrected for the public benefit. The arts of peace must now be attended to with vigour and unanimity, otherwise they will naturally pass into other nations, and we shall sink under our burdens, and fall into comparative decay.

Scotland appears to furnish annually, at the lowest computation, 12 millions from live stock, and above that sum from corn, in gross returns,—besides other articles of land produce, and not including commerce or manufactures. A country that yields above 25 millions from land, and nearly three millions from fishings and mines, and that pays property taxes on a rental of nearly seven millions Sterling per annum, has a fair title to consideration and encouragement. Happy already in the morals and industry of her inhabitants, and in the liberal and fostering care of a British Legislature, Scotland appears capable of the most extensive and important improvement.

ART. II. *Elements of Agricultural Chemistry, in a Course of Lectures for the Board of Agriculture. Second Edition.* By Sir HUMPHRY DAVY, LL. D. &c. &c. London, printed for Longman, Hurst, Rees, Orme and Brown; and A. Constable & Co. Edinburgh, 1814.

WE ought to make many apologies for not sooner introducing this work to the notice of our readers. But the great and well earned celebrity of the author, joined to the novelty and difficulty of the subject, suggested caution in attempting to estimate its merits, and especially occasioned much hesitation where our opinions happen to differ from his.

We are aware that some may be disposed to move the previous question of *cui bono?* or what good purpose can such investigations serve? Because many erroneous opinions, and most absurd theories, have hitherto prevailed concerning the food of plants, and the means of rendering the earth more productive, some think that such inquiries only tend to puzzle and perplex farmers, and to divert them from the plain and onward path of practice, which has been ascertained by experience. We admit that while Chemistry was in a state of infancy, many absurd theories on this subject prevailed; but now that this science has received considerable improvements, an attempt to explain the mysterious processes of vegetation by its principles, cannot fail to be both instructive and useful. It is admitted by all, that manufactures have derived great improvements from the discoveries in this science, which there is reason to hope will contribute no less to the improvement of our agriculture. In fact, the *rationale* of agriculture, like that of manufactures, must keep pace with the discoveries that are made in Chemistry; and to apply the present state of our knowlege in that science, to illustrate its various processes, while what is doubtful, or unknown, is left to future investigation, cannot fail to be attended with practical utility.

This work consists of Eight Lectures, which were delivered before the Board of Agriculture; together with an Appendix, containing the results of experiments on the produce and nutritive qualities of different grasses, and other plants used as the food of animals—each of which will fall to be considered in its order.

In Lecture I. the author presents an outline of the subject; and as most of the particulars therein alluded to, come to be more fully illustrated in the progress of subsequent Lectures, we shall not detain our readers with any remarks upon this preliminary branch of the course.

In Lecture II. our author quotes an experiment of Mr Knight, with a view to show that gravitation has a powerful influence in determining the direction of the roots and branches of plants. This gentleman placed garden beans around the circumference of two wheels, one of which was parallel, the other perpendicular to the horizon. The beans being sufficiently moistened with water, to make them germinate, the wheels on which they were fixed, were put in motion by a water wheel, so adjusted, that the rotatory velocity of

the beans could be increased or diminished at pleasure. When the verticle wheel performed 150 revolutions in a minute, all the radicles turned their points outwards from the circumference of the wheel, and receded nearly at right angles from its axis; while the germens took the opposite direction, and their points soon met in the centre of the wheel. This degree of centrifugal force seems to have overcome the power of gravity, which would have directed the roots downwards, and the stems upwards. Inferior degrees of rotatory motion caused the roots and germens to take directions in the diagonals of parallelograms, compounded of the gravitating and centrifugal forces; from which it is inferred that gravity causes the roots to descend, and the stems of plants to rise perpendicular to the horizon. There are, however, a few difficulties which we wish our scientific author had considered, and attempted to remove; such as, that plants are known to bend towards the light, and do not assume a perpendicular position, except where light is admitted on all sides of them. In those plants that are propagated by slips, what is a bud, and would become a branch, if exposed to air and light, becomes a root when inserted in the earth. Willows, and some other kinds of plants, are known to grow as well when their tops are inserted in the earth, and their roots placed upwards, as when they are in the contrary position. Now, how comes it that the action of gravity can so modify the same organs of plants, that, in one case, they elaborate roots which descend,—in the other, branches and stems which take the opposite direction? From the fact of the perpendicular position of plants, our author very properly infers that no more stalks of corn, or trees, &c. can grow upon a hill, than upon the horizontal base on which the hill is situated. He thinks fiorin grass an exception to this, which being a creeping plant, may afford more food on an irregular surface than on its base. But, without adverting to the rapid decline of this grass in the public estimation, we may observe that its stolons can only be regarded as its roots; and that the only food it yields, are the stems it throws up perpendicular to the horizon, in common with all other grasses.

In Lecture III. our author discusses the structure of plants, and the products extracted from their several parts. Plants are composed of *roots, trunk and branches,—leaves, flowers or seeds.* The root is merely a continuation of the stem, terminating in small filaments, instead of branches and leaves. By this organ, the plant is fixed in an erect position, and it extracts nourishment from the soil. In some plants, the roots and branches are mutually convertible into each other. Thus Woodward inserted the branches of a willow in the soil, and elevated its roots in the air; when the former threw out roots, and the latter buds, leaves, and branches.

The bark is covered with a thin coating, in which no vessels are found, called the *epidermis.* This, in large trees, is commonly in a state of decay; but in hollow plants, such as canes, reeds, wheat, oats, and various grasses, it is exceedingly strong; and, viewed through a microscope, it appears like a glassy net-work. Our author

first observed, that the epidermis of the rattan struck fire with steel; and that two pieces of it, when rubbed together, emitted sparks. This led to the discovery, that the epidermis of plants is chiefly composed of silicious earth, or flint; and he thinks this coating defends the tender plants from the puncture of insects, and serves the same purpose to them with shells to many of the insect tribes. Within the epidermis is situated the *parenchyma*, which is a soft substance, consisting of cells, filled with liquor, and generally of a greenish colour. The innermost bark is composed of *cortical layers*, which consist of fibres that are interwoven transversely and longitudinally. The transverse fibres are membranous and porous; the longitudinal are generally tubes. It is commonly supposed, that the sap rises up through these tubes, and, after undergoing a certain elaboration in the leaves, it descends again through the parenchymatous coat of the bark, where it is converted into nourishment for the plant. Thus, if the bark of a tree be wounded, the formation of new bark always takes place at the upper edge of the wound; and if part of the wood be removed, the formation of new wood always takes place below the upper part of the bark. We may farther observe, that if a tree be girded with a hoop of iron, no farther increase of wood takes place below the hoop; though it still continues to grow and accumulate above the hoop as before. Yet it appears, that if a piece of the bark of a tree be insulated, by cutting away a stripe of bark all round it, this insulated piece of bark will continue to discharge its functions, in sending out shoots, and accumulating wood, independent of any general circulation.

The wood of trees is of two kinds; the *Alburnum* or white wood, and the *red* or heart wood. The first is sometimes called the *living*, or *sap wood*, because its sap vessels, and other vegetable organs, still continue in activity. The last is sometimes called *dead wood*, because in it the vegetable functions seem to have ceased. The cortical layers seem gradually to be transformed into alburnum, and that again into heart wood. Hence the different accumulations of wood are arranged in concentric tubes; and, when a tree is cut transversely, its age may be guessed at by the number of rings it exhibits.

With regard to the uses of the pith, physiologists are not agreed. Mr Knight found it might be removed from young trees, without any sensible injury. But all are agreed, that the leaves discharge very important functions in the vegetable economy. They are found to be an extension of the alburnum, the cortical layers, and the parenchyma, by which an enlarged surface of the plant is exposed to the action of air, heat, and light. In the leaves, a great part of the water in the sap is discharged into the air; while what remains acquires new properties, and descends along the bark, for the nourishment of the plant. If a leaf have its under side turned up to the sun, its fibres will twist, until it regains its natural position. During sunshine, leaves elevate upon their footstalks, and seem to move towards that luminary. In darkness, the leaves close themselves, and they are then said to sleep. If a tree be stripped of its leaves in

spring, it dies; and the reason why some plants drop their leaves in autumn, while others continue them all the year, is not ascertained.

The flowers are the most beautiful parts of plants, and are the organs by which their race is propagated. They consist, 1*st*, Of the *Calyx*; 2*d*, Of the *Corolla*, which is monopetalous, or polypetalous; 3*d*, The *Stamens*, or male organs, on the top of which are placed the *Anthers*, which discharge the pollen, or fecundating powder; 4*th*, The *Pistils*, or female organs, which are surmounted by the *Style*. Upon the arrangement of these male and female organs, the Linnean system of botany is founded. After the fecundating process is accomplished, the flower drops off, and is followed by the seed, in which there may be distinguished, 1*st*, The *organ of nourishment*; 2*d*, The nascent plant, or the *plume*; 3*d*, The nascent root, or the *radicle*.—For an account of the several products of plants, we must refer to the work itself.

The most essential elements of vegetable substances, are hydrogen, carbon, and oxygen, in various proportions, either alone, or in very few cases combined with azote. Gum and sugar contain nearly the same elements; and starch differs from them only in containing a little more carbon. These three products are convertible into each other. Thus, in the ripening of the grain, the sugar conveyed into it by the sap-vessels coagulates into starch. But in the process of malting, the converse takes place, and the starch in grain is converted into sugar. Mr Cruikshank, by exposing syrup to phosphuret of lime, converted part of the sugar into a sort of mucilage; and M. Kirchoff has converted starch into sugar by the following process.—One hundred parts of starch, four hundred parts of water, and one part of sulphuric acid, by weight, are boiled together for forty hours; the loss of water by evaporation being supplied by new quantities. The acid is then neutralized by lime, and the sugar is crystallized by cooling. Dr Tuthill, from a pound and a half of potatoe starch, procured a pound and a quarter of crystalline, brown sugar, whose properties were intermediate between cane sugar and grape sugar. We wish our author had specified the sort of vessels in which the boiling was performed; as this experiment seems to open a new field of industry, which may have great influence on the agriculture of this country.

Gluten and albumen differ from other vegetable products, chiefly in containing azote. When gluten is long kept in water, it ferments; and it is the cause of fermentation in dough, in worts, and in the juices of fruits,—by which they are converted into beer and wine. During this fermentation, a change is effected in the elements of sugar; from which alcohol, or ardent spirit, results. Part of the carbon combines with oxygen, and escapes in the form of carbonic acid; while the remaining carbon, hydrogen, and oxygen, combine to form alcohol.

In the fermentation of wheaten bread, more than one-fourth of the elements of water combine with the flour; more water is consolidated in the formation of bread from barley, and still more in that from

oats. Our author thinks, that the gluten in wheat, being more abundant than in the other grain, combines with the starch and water, which renders the wheaten bread more digestible than the other species of bread. It is also supposed, that gluten, being allied to animal substance, renders wheaten bread more nourishing than the other sorts. But it also appears, that gluten, being the ingredient on which fermentation chiefly operates, is completely changed during the process; and no trace of it can be found in bread that has been well fermented.

For the various analyses of the different kinds of grain, seeds, and vegetables, used for food, we must refer to the work itself. We shall only offer a few remarks on the Table of the proportions of soluble or nutritive matter found in various species of grain, roots, and grasses, exhibited at p. 150; together with the more detailed experiments on the comparative nutriment of the grasses, contained in the Appendix, which were made at Woburn Abbey. In these experiments, all those parts of seeds and plants which were taken up, and dissolved in water, are held to be nutritive. Now, when food is put into the stomach, it is acted upon by the saliva and the gastric juice, as well as by water; and is likely to undergo solutions and changes, which water alone cannot effect. We wish our author had considered the effect of these fluids in converting substances into nourishment; and the results would probably have been somewhat different from those afforded by water alone. It may also be observed, that food, which is put into the stomach, is more completely ground down by chewing, and all its ingredients more completely exposed to the solvent juices of the stomach, than can take place when it is simply boiled, or infused in water. It is, therefore, probable, that a much greater proportion of it may be brought into solution than in the experiments alluded to; even though we should leave out of view that the gastric juice is known to dissolve, and to convert into nourishment, for the animal body, substances on which water will not act. We offer these remarks, because we think there is a fallacy in the conclusions our author deduces from these experiments; and that when this fallacy is suggested, no man is better qualified to correct it, by investigating the power of the gastric juice, in conjunction with water, in converting food into nourishment.

In Lecture IV., Soils are treated of. These are known to be a covering of loose earth, which invests the globe in most places, and which has been formed by the disintegration of the solid rocks and strata from exposure to the weather, or the erosion of water. Soils also contain various proportions of the remains of vegetable and animal matters, which have grown and decayed upon them, or have been conveyed to them in the progress of cultivation. Some soils also contain various proportions of mineral salts; some of which are beneficial, others harmless, and a few are injurious to vegetation; and which either preexisted in the strata from which they were formed, or have been conveyed into them by subterraneous springs. Soils also contain various proportions of metallic oxides, of which

that which abounds most is oxide of iron, and occasionally that of manganesum.

Of all the earths which enter into the compoſition of ſoils, *ſilica*, or earth of flints, is the moſt abundant, as it conſtitutes by far the principal ingredient in the compoſition of the ſolid ſtrata of our globe. *Lime* alſo enters into the compoſition of ſoils, and contributes much to their fertility, provided it be not in exceſs. In ſoils it is uſually combined with carbonic acid, which eſcapes with effervеſcence when ſtronger acids are applied; and hence the preſence of lime in ſoils can be eaſily detected. Sometimes it is combined with ſulphuric acid, which compound is of difficult ſolution. In general, ſilica conſtitutes the ſand that is found in ſoils. But if they have been formed from the decompoſition of limeſtone rock, or chalk, great part of the ſand conſiſts of ſmall fragments of theſe rocks. *Magneſia*, like lime, is commonly combined with carbonic acid. *Alumina*, or pure clay, is the earth to which ſoils owe their tenacity. Without this ingredient, ſoils would be a looſe ſand; and, where it is in exceſs, they cake and conſolidate with moiſture. The metallic oxides in ſoils can hardly be regarded in any other light than as ſo much ſand.

Among the ſaline compounds found in ſoils, our author enumerates common ſalt, ſulphate of magneſia, ſometimes ſulphate of iron, nitrates of lime and of magneſia, ſulphate of potaſſa, and carbonates of potaſſa and ſoda. To this liſt we may add ſulphate of alumina, which, with ſulphate of iron, we found to be injurious to vegetation, until theſe ſalts were decompoſed by lime.

For the very elaborate and accurate analyſis of ſoils, we muſt refer to the work itſelf. We ſhall only obſerve, that, for all ordinary and practical purpoſes, a leſs laborious and leſs intricate analyſis may ſuffice. Thus, after the finely divided matter, which (the clay part of it eſpecially) occaſions the coheſion of the ſoil, is ſeparated from the ſand, ſmall ſtones, and other more bulky materials, by waſhing, as directed by our author, it may be ſufficient to aſcertain what part of the former conſiſts of animal or vegetable matter, by burning as directed. If the ſoil be found to contain lime; by its effervеſcing in acids, this can be diſſolved, and its quantity aſcertained, by nitric or muriatic acids. Sand, and the more bulky ingredients, ſeem only to act mechanically, in modifying the texture and coheſion of the ſoil; and theſe being ſeparated from thoſe which occaſion coheſion, and from thoſe which furniſh food to plants, we apprehend to be ſufficient for ordinary purpoſes; the relative proportions of each being aſcertained by accurate weights. We ſhall only add, on this point, that as analyſis is the moſt difficult part of the chemiſt's buſineſs, eſpecially where various ſubſtances are blended in the maſs, and unexpected ſubſtances often occur; ſo, our author has diſplayed great extent and great accuracy of chemical knowledge, in the plan he lays down for the analyſis of ſoils.

Our author adds, that he has known a tolerable crop of turnips upon a ſoil containing eleven parts out of twelve of ſand; but, if the ſand be in a greater proportion, the land is abſolutely ſterile. But if the impalpable matter in the ſoil, eſpecially if the alumina be in too great

proportion, it will be too cohesive, and equally sterile as if it consisted wholly of silicious sand.

Sir Humphry shows, that the distinction between cold and warm soils is founded in nature. White moist clay soils heat slowly, and cool rapidly; their heat being wasted by evaporation. Dry and dark soils which contain much vegetable matter, heat rapidly, and cool slowly. His experiments in illustration of these facts seem perfectly satisfactory. He also found, that the fertility of soils was in proportion to their power of absorbing moisture, when dried at 212 degrees of heat, and exposed to the air. Those which gained most weight in a given time, from the absorption of moisture, equal weights of each being exposed, were most fertile. He thinks that, where much rain falls, soils may carry more crops than where it is deficient, as, in the latter case, they must be supported chiefly by manures.

Some soils remain unaltered upon the rocks from which they were formed. Some are alluvial, or have been conveyed into their present situation by water. Those upon limestone, or basalt, if of sufficient depth, are generally fertile; those upon granite, and several other sorts of rock, are generally sterile. We have observed, that the most sterile soils are those derived from rocks which have no lime in their composition. This lecture concludes with an enumeration of the primary and secondary rocks which have been distinguished by mineralogists; and a short sketch of the geological structure of Great Britain.

Lecture V. treats of the constitution of the atmosphere, and its influence on vegetation. The atmosphere is found to consist of water, carbonic acid gas, oxygen, and azote. At 50° of Fahrenheit, the air contains about one fiftieth of its volume of watery vapour, and about one seventy-fifth of its weight. When the air is heated to 100°, with free access to water, it absorbs about one-fourteenth part in volume, or one twenty-first in weight. Thus, the greater the heat of the atmosphere, the more water it takes up in vapour for the nourishment of plants. Changes of temperature, and perhaps also of the electric fluid, precipitate the water in clouds, dew and rain. Snow and ice in winter shelter the ground from extreme cold, which would otherwise destroy the roots of plants.

Although the carbonic acid gas be of more specific gravity than the other elastic ingredients of the atmosphere, it is found nearly in the same proportions at all elevations, which is known by its rendering lime water turbid. The same is found to be the case with the other two gases, oxygen and azote. Animals inhale oxygen, and convert it into carbonic acid; and great quantities of this gas are generated by various chemical processes. On the other hand, the leaves of plants absorb carbonic acid; and when they are acted upon by the sun's rays they decompose this gas, retaining the carbon, and throwing out the oxygen or respirable gas into the atmosphere. In this way the balance of nature is admirably preserved; and as it may occur, that, in winter, when vegetation ceases, the air ought to become unfit for respiration, it may be observed, that there is always one half of the globe exposed to the action of the sun's rays, and that the atmosphere is mixed, and the proportions of its constituent

ingredients preserved by the winds. Our author shows, that in the experiments of Mr Ellis, by which it appeared that plants emitted a greater proportion of carbonic acid gas, than of oxygen or respirable gas, the plants were put in an unnatural state, and the influence of light upon them much diminished by the media through which it passed. Our author's experiments appear perfectly satisfactory; and his results correspond with those at which we arrived by similar investigations.

But in the process of germination a reverse order takes place to what happens during the growth of plants. The seeds absorb oxygen from the atmotsphere, and emit a portion of carbonic acid gas. By this the starch and mucilage contained in the cotyledons of the seed, are converted into sugar to nourish the infant plant, until its roots strike into the soil, and its leaves expand into the air. Our author thinks sugar only differs from starch in containing a smaller portion of carbon, part of which, in this process, enters into the composition of the carbonic acid gas. Hence he thinks the soil should be so well pulverized, as freely to admit the atmospheric air to act upon the seed; without which, only sickly plants will be produced. We may add, that the seed ought also to be covered so as to exclude from it the sun's rays, as their influence, however they may promote the future growth of the plant, is hostile to the germinating process.

Seeds, he observes, may be improved by crossing the breed; as Mr Knight has produced a large species of peas, by crossing their flowers, and has obtained an improved species of wheat by sowing a mixture of different species. We may add, that seeds may be improved by judicious selection of the best varieties from the same field, and by frequent changes of seed from one soil or climate to another.

The obvious way to improve soils is to add such earthy ingredients, together with such animal or vegetable matters, as may be most deficient in their composition. But this must not be done to excess, else an opposite extreme will be produced. Soils in which sand predominates, are best adapted for green crops and sown grasses; while clay soils are best for wheat and drilled beans. The former can be made fit for every purpose, by adding a suitable proportion of clay, of which that which contains lime is the best, as it ensures against their containing any pernicious mineral salts.

In Lecture VI. our author enumerates the various sources of animal and vegetable manures, in which we shall not follow him, as we have already given long extracts from this part of the work in our 14th volume. We shall only beg leave to offer a remark or two upon the reasonings and conclusions contained in this Lecture.

And, 1*st*, Sir Humphry thinks that animal and vegetable manures enter the roots of plants unaltered, in a state of simple solution in water; and he refers to experiments which seem to support this opinion. We are disposed to admit that mucilage, sugar, and some of the more soluble animal and vegetable products, may enter the roots of plants in this way, unchanged. But our author's experiments show, that, unless these materials be very much diluted, they retard, in place of promoting the growth of plants; and, in this diluted

state, they may probably undergo fermentation before they enter the plants. But our author found that plants absorbed no particle of charcoal, when the finest kind of it, extracted from gunpowder, was diffused in water, and brought in contact with their roots in the state of impalpable powder. We may add, that oils, resins and other substances which abound in charcoal, were never known to enter the roots of plants, unless they were previously decomposed, and presented in a gaseous form. Even plants which abound in these substances, die when their roots are immersed in them. Our author found that fermented dung emitted carbonic acid gas, together with some hydrocarbonate and azote. When a retort, filled with this fermenting manure, had its beak inserted below the roots of grass, the grass exposed to the influence of the gases emitted from this manure, grew much more luxuriantly than what was contiguous. From these premises we are disposed to infer, that as carbon or charcoal, forms the principal ingredient in all the products of plants, this substance generally, if not always, enters into them in the gaseous form, being either taken up by their roots in union with water, or absorbed by their leaves.

But, 2*d*, Our author thinks that putrescent manures should be applied to the soil in a fresh, or unfermented state; and he adduces many arguments, as well as authorities, in support of this opinion. We are so far disposed to agree with him, that much loss may be incurred by pushing the fermentation of putrescent manures too far. At the same time, we are inclined to think, that a certain degree of previous fermentation is necessary, otherwise no subsequent fermentation will take place in certain soils. We have known dung and litter that had been ploughed down fresh, turned up next spring without any apparent change; of course it could not have contributed to the growth of plants. Instead, therefore, of drying putrescent manures, and spreading them out to the air, to prevent putrefaction, we would prefer compressing them, or covering them with earth, for the double purpose of preventing the fermentation from becoming too violent, and of absorbing the gases which exhale from them. If they become too hot, or fire-fanged, as farmers call it, they ought to be drenched with water, and afterwards compressed. To what extent the putrefactive fermentation should be allowed to go, seems to depend much upon the species of crop, and soil to which it is to be applied. But that a certain degree of this process is necessary, we have no doubt; though great care should be exerted to prevent the heat from becoming too great, and to prevent the gases and exhalations from being dissipated in the air. Dung that is slowly fermented retains a great proportion of these; and earths absorb them, by which they may be conveyed to the soil in a state ready for use. Our author thinks that straw, instead of being put into the dung yard, should be ploughed into the soil in a fresh state; and that, to facilitate its mixture with the soil, it might be chopped small with a machine. We recollect an experiment that was tried at the suggestion of a speculative writer. Dry wheat straw was regularly laid in the hollows of drills, and potato sets placed above the

straw. The straw and sets were then covered with earth; but very few of the potatoes ever came above ground, and these only towards the end of autumn. When the ground was ploughed up, the straw seemed to have undergone no change; nor did it convey any sensible benefit to subsequent crops. Had the same straw been previously subjected to only a moderate fermentation in the dung-yard, there can be no doubt but its effects would have been very different. Potatoes thrive with dung which abounds in litter very slightly fermented; though some degree of fermentation seems necessary even for them. Turnips will not grow except the dung be well fermented.

In Lecture VII. Fossil Manures are discussed; and the bad effects of magnesian limestone are ascribed to the magnesia retaining its causticity much longer than lime, and, in this state, acting as a poison to plants. We are rather inclined to ascribe the effect to the soil being previously overcharged with magnesia. It is well known that a soil already saturated with lime, or its carbonate, will bear a considerable addition, without doing either good or harm. But if the addition exceeds a certain point, it will render the soil perfectly sterile. We always conceived magnesia to act precisely as lime; and in Vol. VI. p. 18, of this work, experiments are detailed, in which we assisted, by which it appeared that the *magnesia alba* of the shops, as well as its sulphate and muriate, in various proportions, instead of being pernicious, were highly favourable to the growth of corn. The magnesia alba is in a highly caustic state; and the gentleman who first raised the cry against it, had done well to have first analyzed the soils to which it did harm. We suspect they would have been found already saturated, and that the bad effects were owing to supersaturation.

We have not left room to follow out our author's observations on the sulphate, phosphate, and other combinations of lime. Nor shall we enter upon the alkalies and their compounds. We shall only suggest one remark concerning the operation of lime as a manure, which we are sorry to find had not occurred to our author. It is well known, that a certain proportion of carbonic acid added to lime, forms a compound which is perfectly insoluble in water. But if the carbonic acid be increased, so as to form what is called a hypercarbonate of lime, this compound is highly soluble in water, and may account for the entrance of lime into the composition of plants, which does not seem possible for an ordinary carbonate, or what is usually called the stony state of lime. Magnesia also forms a soluble hypercarbonate; and in that state may enter the roots of plants. But this excess of carbonic acid which renders the lime soluble, adheres very loosely to its basis, and can easily be expelled by a slight increase of heat, unless it be confined by the incumbent pressure of the soil. Hence the lime helps to fix the carbonic acid which is generated by the fermentation of putrescent manures in the soil, or which floats on the surface of the earth, and freely imparts this gas, in union with water, for the nourishment of plants. A detail of particulars would be too long, and we shall only state, that we have

often observed this process going on, or a constant formation of hypercarbonate of lime, in composts made with sea-weeds, moss, and sea-shells; and in all other composts in which putrescent manures, together with lime or its carbonate, entered as ingredients. We have also observed the same process going on in soils which were manured with such composts, and also in such as received stable dung, together with lime or its carbonate, at the same dressing. It is probable that hypercarbonate of lime may be formed in all soils which have received a sufficient dose of calcareous manure; although, where putrescent manure is deficient, the process may be so slow as not to attract attention.

Our author thinks that silica and alumina do not enter into plants in their pure or metallic state, in which they are liquid at low degrees of heat, and highly volatile. But it is impossible they can enter plants unless they be in solution; and it would have been very obliging had he condescended to point out the particular solvents existing in the soil, by which these bodies, in their earthy or oxydized state, are rendered liquid, and prepared to enter the composition of plants. He leaves us at the mercy of two hypotheses, both of which he disclaims;—that plants fabricate these earths by their vital energy, or that they are endowed with a *vivida vis*, by which they can dissolve and absorb such earths as come within their reach, and which are necessary for their health and vigour.

In Lecture VIIIth, Paring and Burning, Irrigation, Fallowing, &c. are discussed. We agree with our author, that burning renders clays less absorbent of moisture, and less apt to bind with it into a coherent mass. That it thus corrects dampness, increases the warmth of the soil, and makes it approach in quality to those soils in which sand predominates. It also destroys that superabundance of inert vegetable matters which exists in some soils, or converts it into food of plants. We also agree with him, that where the texture of the soil is already sufficiently loose, or the organizable matter sufficiently soluble, burning cannot be useful; and that on poor silicious sands it must be injurious. We are sorry, however, that our author has not turned his attention to the effects of fossil clay, burnt in kilns, and applied as manure to soils.

Concerning the effects of irrigation, in affording nourishment to grass, sheltering its roots from the severity of the cold in winter, altering and improving the texture of the soil, and conveying to it calcareous and other substances which act as manures, there can be no difference in opinion. But with regard to his doctrine concerning fallowing, we differ from him entirely. He thinks a clean fallow 'may be sometimes necessary in lands overgrown with weeds, particularly if they are sands which cannot be pared and burnt with advantage; but that it is certainly unprofitable as a general system of husbandry.' Now, we think naked fallow to be chiefly useful on strong tenacious clay soils; and although it be true that the mineral earths in the composition of the soil, attract no new principles of fertility from the air, there are inferences deducible from his own doctrines which seem to recommend fallows for such

soils. Waving the destruction of weeds, which can be more effectually accomplished by fallow, than by any drilled or green crop, we observe, 1st, That by exposing the soil in large clods, to the action of the sun's rays, in spring and summer, it is heated to 120° of Fahrenheit, and often much more. By this its moisture is exhaled, and the clay comes somewhat to resemble that described by our author, which had been burnt with fire. It becomes more brittle, and less apt to cohere with subsequent moisture. Hence, the oftener our carse soils are treated with fallow, the more friable they become. 2d, When our author pronounced this severe censure upon fallows, he seems to have forgotten what he so often states in the course of his work, that after all the soluble matter in a soil is exhausted by cropping, there still remains much charcoal, the remains of woody fibre; that this charcoal imbibes a large proportion of oxygen when the air has access to it, but that it remains inert in the soil unless a new fermentation be excited in it, by various means which he describes. Now, in clay soils this charcoal is effectually excluded from imbibing oxygen from the air, but is brought into a condition to do so by fallowing. The effect of this, and of its imbibing moisture, is its gradual conversion into carbonic acid, and carburetted hydrogen, for the nourishment of plants. Accordingly, experienced farmers have assured us, that they have known land that had been long manured, and afterwards exhausted by cropping, have its fertility more restored by a fallow, than if it had received a full dose of putrescent manure. Their experience may be accounted for by data furnished by our author; and we are sorry that, in this case, his conclusions seem to be in direct opposition to his premises. We so far, however, agree with him, that fallows are sometimes too often repeated, especially on sandy soils, where drilled crops may, in general, serve their purpose; but on cohesive soils we hold them to be occasionally indispensable. Having already encroached too much upon the time and patience of our readers, we shall not follow our author through the other speculations with which this Lecture concludes.

Upon the whole, we have perused this work with much interest, and with much approbation. Some may think that the arrangement might have been improved, so as to prevent the necessity of repeating the same ideas, or of too frequent reference to the same facts and experiments. But they should consider that this has hitherto been an untrodden field; and in reducing the *disjecta membra* of observations and discoveries made by himself and others, into a connected system, there are few persons who could have acquitted themselves so well as Sir Humphry Davy has done. We have endeavoured to present an analysis of the principal matters contained in the work, in the order in which he has placed them; and if we have ventured to hint at imperfections, or to express a different opinion from his, it is not from acrimony, or disrespect to his genius and talents; but from an earnest wish that he would reconsider the subject,—not doubting but his future labours will be crowned with still more ample discoveries.

BRANCH III.

Agricultural Intelligence.

A most abundant crop of all kinds of Corn has been secured in the best condition. Never have we heard fewer complaints of mildew, smut, and other distempers, or of loss either on the field or in the stack-yard. Turnips and Potatoes are, upon the whole, rather deficient. Wheat has been sown under very favourable circumstances, and the plant is generally regular and healthy.

Prices of all sorts of produce have fallen considerably since the date of our last Number. The average price of Wheat throughout England, for the week ending the 21st October, is 57s. 5d. per quarter; and in Scotland, for the four weeks ending the 15th October, 50s. 7d. Cattle and Sheep are from 10 to 20 per cent. lower than last year.

Our Reports do not enable us to speak decisively of the effect of clay-ashes as a manure. It is probable that many experiments, with different sorts of clay and subsoil, must be made, before the merits of this practice can be fairly estimated; and some improvement introduced in the method of burning before it can become general.

SCOTLAND.

Aberdeenshire Quarterly Report.

The past quarter has been the most seasonable almost ever experienced in this county, with the exception of one storm of rain in the end of August, which partially injured the different crops of Grain. With some very trifling exceptions in the Highland districts, the whole crop is carried in the finest possible condition; and although scarcely so bulky as last year, it is rather above than below an average. The Bear is scarcely so heavy as last year; but, from having got more sun in ripening, will probably malt better. Oats, although in some instances hastened a little in ripening, are well coloured, and will give well in Meal. The Wheat crop, of which the culture is increasing, is bulky, and the Grain generally sound; and the Potatoes are abundant in quantity, and excellent in quality. Turnips, though in some instances stunted by the drought, are a full average crop; and with the fineness of the Fodder, and abundance of Hay, will enable the farmer to bring his stock in high order to the spring markets.

Corn markets have remained in the same depressed state as at the date of last Report, and it is feared will not recover for months to come, as the scarcity of money and general depression of agricultural produce will drive too much to market; and the merchants not

having been able to get quit of their former stock to advantage, will be shy of taking off the usual quantity on speculation. In these circumstances, the views of the farmers must be extremely gloomy; and unless some revival takes place soon, rents and labour will not be paid. Until a month hence, little Grain is purchased; so that prices can hardly be quoted. Oatmeal is worth 14s. to 16s. at Aberdeen; Bear 14s. to 18s.; and Oats 13s. 6d. to 18s. as in quality; but the market exceedingly dull.

Cattle markets have remained pretty steady during the quarter; but the price has not been such as to indemnify the grazier, and may be stated at 10 to 12½ per cent. below last year. Dairy produce has paid tolerably well; Butter 1s. 2d. to 1s. 6d. per lib. of 28 oz.; Cheese 6s. 6d. to 8s. 6d. per stone of 26 lib. Amsterdam; with the Cream 8d. per lib. of 16 oz. Amsterdam. There is as yet no alteration in the price of labour.——*20th October.*

Upper Annandale Quarterly Report.

One of those uncommon floods which are seldom equalled in this country, occurred on the 26th of September. It went over the upper and mountainous parts of Galloway and of Dumfriesshire, sending down the rivers immensely swelled, and carrying away crops, trees, and bridges. The drains are now so numerous in most of the sheep walks, as to send down the rivers in excess almost immediately; and in making all new bridges, this ought to be provided against, by founding deep, and putting on side arches. The weather has been occasionally good in the course of last month; and there was one week of sunshine, which was the saving of most of the corn of this part of the country: the rest of the month has been of the worst kind, by excessive rains at short intervals; and the land is now as wet as mortar; while not a third of the Potatoes has been raised, and the land has been in very bad order indeed for putting in Wheat, during the whole of last month. Summer Fallows were sown prior to these floods; but in the light soils of this country, Potatoes are a valuable crop; and when the weather admits of it, the Potatoe fields, properly manured and dressed, produce Wheat almost as good as the plain Fallows. Wheat sown last year, late in November, in Potatoe lands, lay three months in the soil, which was most of that time wet, before it sprung in braird;—and yet the crop was equal and fair, and free of any blemish.

The Corn of 1815 has been less rich than was expected in summer; but it is about an average. Hay was much above an ordinary crop, and Potatoes and Turnips are fully equal to expectation. The Cattle are in good order, and the stack-yards full; but the farmers are disheartened by the continued low prices of Grain, and the late uncommon fall in the prices of Cattle and Sheep. Little sale, with low prices, and bad payments, altogether present serious difficulties to this class of people; Wool alone having maintained its value, and even risen. The current sales are at the following rates, viz. Oatmeal 2s. 4d. per stone; the finest Hay of sown Grasses, 6d. for

24 lib. avoirdupois, and other farm produce in proportion; Cattle and Sheep are fallen from 20 to 30 per cent.; and Oats and Wheat are scarcely saleable. Fine Cheviot samples of Wool would now bring little short of 40s., and short Sheep Wool 20s. per stone.

Plenty in the land is extremely desirable: it enables the manufacturers and labourers to live with comfort, and to work (if they can be induced so to do) at lower wages; and it saves the drain of treasure to other nations. But if the farmers continue in their present situation for a year or two longer; on the one hand overloaded by rents, taxes, and expenses; and on the other discouraged by the want of markets,—their capital will and must be exhausted. This would be one of the most serious calamities that could befal the kingdom; and it appears inevitable, unless measures be taken to prevent it.

If means could be devised in order to supply France with corn of British growth, to a reasonable extent, or at least to provide for our armies in that country; and also to furnish the West Indian colonies with this article, instead of allowing it to go from the United States, the markets of the farmer would improve, and he would be encouraged to proceed in improving his lands. At present, many farmers, despairing of being able to carry on, have ceased to improve, and are exhausting their lands; but this must soon be felt as a public evil of the most serious kind. No remedy appears, however, unless there be a helping hand extended by the Government to the farmers, as was done to the commercial interest, very properly, in the time of their distress. The property-tax ought never again to be imposed on any farmer holding lands at full rental; nor should any tax whatever be imposed on his work-horses. Landholders are likely in a short time to be as much straitened as the farmers are at present; and an efficient deduction in the rents appears to be a measure not in their power generally to grant, as long as they are burdened so heavily with taxes, and assessments of various kinds.

Many farmers have been hypothecated and sold out, and many estates are now in the market, or likely to be so very soon, in this county, to which no dread or suspicion attached, only two years ago. —*26th October.*

Banffshire Quarterly Report.

Since the date of last Report (23d of July), the weather has been highly favourable for the operations of the field, and for bringing to maturity the different crops of grain. Harvest became pretty general in the early districts of the county about the 10th of September; and from the ripening coming on so rapidly, and there being little or no interruption from the weather, the work has been accomplished in much shorter time than for many years preceding. The crop, with few exceptions, has been secured in the best possible condition several weeks ago, and without sustaining the least da-

mage, excepting some fields of late potatoe oats, that may have suffered by the wind, during some days about the end of September. With the exception of some of the coast-side farms, where the crops were stunted with the July drought and sea winds (as noticed in last Report), the stack-yards in general present an appearance far exceeding the usual bulk; and the grain will be of good quality, equal to a full average. Some ideas were entertained that the Oats would be inferior to last year's at the time of harvesting, perhaps owing to their fast ripening; but, where trials have been made, they give much about the usual quantity of meal at the mill. Barley will be of good quality; but, from being an entire drug last season, many farmers circumscribed the sowing of this article, no doubt to the disadvantage of agriculture in this district. Wheat is of fine quality, and will give a fair return. As to sales, we can scarcely report any thing. Some old Potatoe Oats, of first quality, were selling lately at 16s. p. boll (about 6 bushels), but are now no better than 14s. Oatmeal, in the market, 16s. per boll of 8 stone Dutch (140 lib.) Although Cattle have sunk much in value (perhaps not less than 30 per cent. since the 1st of June), it has been so far fortunate for this part of the country that they have been in more demand than grain, otherwise the farmers in the northern counties could not possibly have gone on so long; yet at the same time it is very certain that farm capital is fast declining. Those engaged in the grazing trade will suffer severely from the very great decline of prices since the beginning of the season. Few servants are yet engaged for the winter half year: but it is apprehended that little if any reduction of wages will take place, which at present are high out of all proportion to the prices of produce. The setting of land still goes on in the same way, by rouping; when a number of unthinking people bid upon one another; and the landlord, for the most part, prefers the highest offerer. From the mildness of the weather, the Pasture fields afforded plenty of subsistence to the Live Stock; and there is still more verdure than there is generally at this season. Turnips are come to be a fine crop; and those late of sowing, which did not promise so well at the date of last Report, have mended beyond expectation. Some lots of good cattle are already put up for the winter; and the numbers and quality this season will rather exceed what is generally found in the district; and as every kind of winter keep is in great abundance, the stock will be in fine order for the spring markets, and many of them are already in high condition. Potatoes are a good crop, and of excellent quality. A good deal of Wheat has been sown, and it has a fine appearance.——*22d October.*

Berwickshire Quarterly Report.

The weather since the date of last Report has been admirable. In the present quarter there have been about twenty-four days on which we have had showers, but in general they were so gentle and of such short continuance as scarcely to counteract the effects of drought, particularly on Turnips and Potatoes, or to supply the mills with water

on our less copious streams, till within these ten days past, when our rivers have swelled a little, but in no degree approaching to a flood. Our showers have been genial, and in no one instance either accompanied or succeeded with cold. From the 6th to the 10th of September, we had hoar frost in the night; but it was so moderate as not to injure the crops, even in places the most exposed. Hay harvest was concluded in the best style, and the crops of both Natural and Sown Grass are abundant. Harvest for Grain commenced on Tweedside as early as the 10th of August, and in the centre of the county on the 21st, and became general by the 26th and 28th; after which, reaping was carried on in full vigour, with almost no interruption, till it was finished—on the earliest soils, September 9th, and over a great part of the county, on the 16th—generally by the 23d, and in our highest situations, with a very few exceptions, by the end of the month. Every kind of Grain, except a few Peas and Beans, was safely stacked, in the lower part of the county, by the end of September, and in Lammermuir by the 11th of October. Shearers engaged for the harvest had, the men from 15s. to 16s. per week; women 14s. to 15s.; but, in one of the busiest weeks, those who hired by the week, were as high for men as 21s. to 22s., and women 19s. to 21s. besides victuals. Their dinner loaf wheaten 2¾d.

The grain in general is plump and sound, and no complaint of blight in any one species of produce. Wheat is above a fair average crop. Barley, of which rather less had been sown than in some former years, good in quality, and a full crop. Oats, on strong clay soils, rather below, but on other soils a fair average produce. Peas and Beans have yielded abundantly, and are of excellent quality.—From the end of July till the middle of harvest, Wheat of last year's crop, brought from 46s. to 52s. per boll of 6 Winchester bushels, but has since declined from 40s. to 45s. New Wheat for seed, early in the season, was as high as 48s.; at this date, from 30s. to 36s. with little demand, and rather looking downward.—Barley brings from 17s. to 20s.—Oats, which yield well to the firlot, and also in Meal, give from 16s. to 20s.—Peas and Beans, fair samples, but few or none of them sold.—Oatmeal, per load of 16 stones Dutch, 32s. to 38s.; since last Report sold in retail at 2s. 3d. to 2s. 6d.—Flour, per sack of 20 stones English, 50s.; Quartern Loaf till October 9th, 10d.; at present, 9½d.

Turnips were for a few weeks rather stunted in their growth by the drought; but since the genial showers set in, their progress has been rapid, in particular that of the latest sown; and with a few exceptions, seem to be a full crop on their proper soils. Although they are already sought after by the feeders, the price per acre is not yet fixed. There is abundance of stock in fair condition for their consumption, to which they have been given from two to four weeks past.—Potatoes are every where good in quality, but for lack of sufficient moisture when the bulb was forming, they are not in general so numerous as last year; and are now nearly all taken up without the

slightest injury either from frost or rain. New Grasses are every where luxuriant, and promise a fair crop for the ensuing year.

At St James's Fair, August 5th, which is a mart for part of our stock, there was a good show of Cattle, and a very dull sale; fat, 8s. to 9s. 6d. per stone, sinking offals. At Dunse, however, on the 29th of the same month, fat, of which the show was rather short, were in demand, at from 9s. to 10s. ditto; lean stock met an uncommonly dull sale. Little business of this description was done; and on what were sold, the greater part of the grass lost. At Earlston Fair, on the 19th curt. there was a small supply of fat, which brought from 8s. 6d. to 9s. per stone, but a great show of lean cattle, with dull sale, at above 20 per cent. below last year's prices; and many remained unsold. At this market were presented and sold, five cattle of two years old, at 17*l.* per head; the best in size, in form and condition, of any that were ever seen in that or in any other market in this county. Beef sold in retail, till within these few weeks, from 7d. to 8d., now 5d. to 7d.; Mutton nearly the same. Draft Ewes of the Leicester breed, have been bought from 35s. to 42s.; Cheviot do. 19s. to 22s. 6d. and some prime lots have reached 27s. 6d.; but this kind of stock is not so much sought after as last year. Dinmonts, or 2-year old bred wethers, for Turnips, 38s. to 42s.; Cheviot wethers from 24s. to 28s. and some superior lots as high as 30s. —and more in demand than last year.

Wheat, the sowing of which is not yet finished, has met the most favourable season that could be desired. It occupies a still greater proportion of our fields than last year; and the braird, so far as it has advanced, is uncommonly luxuriant.

Of the premiums awarded by the Border Agricultural Society, which met at Kelso, Wednesday October 4th, William Robertson of Ladykirk, Esq. received for the best Leicester Ram, 21*l.*, and for the second best Short-horned Cow, 3*l.* 3s.; Mr John Fairbairn, Halyburton, for the best pen of Cheviot Gimmers, 2*l.* 2s.; Richard Allan, Mr Fairbairn's shepherd, for rearing the greatest number of Cheviot Lambs, 5*l.* 5*s.*

At the Tweedside show, which held at Coldstream, October 5th, Mr Abraham Wilson, Edingtonmains, received for the best Shearling Tup, 7*l.* 7s.; for the best Tup of any other age, 7*l.* 7s.; and for the best pen of five Gimmers, 7*l.* 7s.; William Robertson of Ladykirk, Esq. for the second best Ram of any age, received 5*l.* 5s. and Richard Allan, shepherd to Mr John Fairbairn, Halyburton, for the greatest number of Highland or Cheviot Lambs, 3*l.* 3s. This shepherd produced to his master at weaning time, 399 Lambs from a flock of 401 Ewes. As Highland Ewes have seldom twins, this was a strong proof of the shepherd's attention. In another flock of 20 score of Ewes, tended by another shepherd on Mr Fairbairn's farm, the Lambs amounted to 396, so that out of 40 score of Ewes, only 5 Lambs were wanting; which, on high grounds, was a great proof of the mildness of the season, as well as of the attention of the shepherds.—*October 27th.*

Dumfries-shire Quarterly Report.

THE hopes of an abundant crop, expressed in last Report, are completely realized. All has been for some time safe in the stack-yard, and seldom has so much bulk been exhibited. The quality of Wheat is particularly excellent; for many years we have not seen it so plump and sound.—Oats, where they have been taken to mill, are said to yield well in Meal; and Barley will prove fully an average.

The weather through harvest was variable, and, upon the whole, this may be said to have been rather a rainy one; so many droughty days, however, intervened, that no damage of any magnitude was sustained. The air being generally cold or sharp, little or no growth took place. Eight or ten exceedingly drying days setting in after the 6th current, enabled us to get in what then remained in the fields in capital order.

Turnips are generally small in size. Superabundance of moisture is the only feasible reason that can be assigned for this.—Potatoes are mostly taken up, and are a full crop.

Had prices kept up, or nearly up, to what they have been for some time past, the present would have proved a most favourable year for farmers; but the fall is so great, that little comfort can be derived from the well filled yards. There is certainly much good reason for the despondency which now universally prevails; and unless some speedy and effectual aid is applied by landlords, a very considerable number of farms must unavoidably come into market. There is much land advertised for sale in this county, but few bargains have lately been made.

Little can be added respecting Clay Ashes. Several pieces of Turnip manured with them, are certainly rather inferior to those growing from dung. This should not lessen our opinion of their quality, when we consider that from their *lumpishness*, a considerable time must elapse before they become sufficiently reduced to enable the roots of the plants to feed upon them: Where they have been allowed to lye over the winter previous to being used, a remarkable difference is observed in their effect, the plants immediately growing in the most vigorous manner. Some fields dressed with Ashes, have lately been sown with Wheat.

The demand for, and prices of Cattle, have declined since last Report; very little, and in many cases nothing, will be got for the Summer's Grass. It is rather surprising that beasts of the best quality have fallen more in value than those of an inferior sort; want of cash is the most probable cause of this. The markets for Sheep and Wool, which stood so high in the summer, have been for some time past rapidly coming down, and the sale of Sheep in England is understood to be very dull at present. Beef and Mutton are selling higher than the prices of lean stock warrant. This, however, can only be of short duration.—*25th October.*

Fifeshire Quarterly Report.

The weather, during the late harvest, was uncommonly favourable, and allowed the victual to be cut down in the finest order; and almost the whole, with very trifling exceptions, to be stacked, without any material damage either from wind or rain.

From the appearance of the stack-yards, there can be no doubt that the present crop is much greater in bulk than that of the preceding year; and from any trials that have been yet made, there is no reason to suppose that, in quantity or quality, it will be at all inferior to crop 1814: the presumption is, that the quantity of grain at least will exceed that of the former crop, and that considerably.

Peas and Beans have, in some parts of the county, sustained damage from rains, of which a great deal has fallen within the last ten days. Turnips are generally pretty good, but by no means a heavy crop. Potatoes, of which a large quantity is still in the ground, though of excellent quality, are very inferior in quantity to what was expected from their appearance before being raised; and this is easy to be accounted for, from the want of rain during the summer preventing the root expanding so much as it otherwise would have done.

Graziers complain that their trade has this season been a very poor one; they had abundance of grass, but the prices now offered for cattle are in many cases very little more than prime cost, when bought in last spring, from which a considerable fall in the rent of grass enclosures may assuredly be expected next spring.

Flax is this year an excellent crop, and, in this county, superior to last year. Hay is in great abundance, and much of it of the best quality; price, at first, 6d. per stone, and even lower; but the late rains have raised this article near 2d. per stone.

The wages of reapers, ploughmen, ditchers, hedgers, and every description of labourers, have not in the least fallen, nor appear likely to fall. Wright work, smith work, wood, iron, saddlery and harness, the farmer must pay for at the same rates as for several years past, at the same time that victual of every sort, as well as every article produced on a farm, will not fetch much more than half the price it formerly did.

And what adds to the difficulty and distress of the farmer, is, that a ready market or quick sale cannot be had at prices far below what it costs him to raise his produce. Distress compels great numbers to force a market; and that can only be done by taking a lower price, and thus, from week to week, reducing the market lower and lower.

The consequences must be most fatal; that spirited culture which first brought plenty, and made importation unnecessary, will soon cease; and the produce of course will diminish in a ratio beyond conception.—25. *October.*

Forfarshire Quarterly Report.

Soon after the date of our last, a severe drought set in, with warm sunshine, and frequent attacks of frost during the nights. The springs

and rivulets were generally dried up; much inconveniency was felt from want of water to cattle; and meal rose a trifle, not from want of grain, (for it was never so abundant at this season,) but from want of water to grind it. Harvest did not become general until the first week of September, when much was cut down, and carried in excellent order. About the 20th of that month, heavy showers commenced, which have continued, with a few short intervals, ever since. These occasioned much interruption to what remained of the harvest, which is now generally gathered in, though much of the Potatoes still remain in the fields.

The Wheat is generally of good quality, though not so large in quantity as in former years. In some hollow places, where there are marshy grounds, or land imperfectly drained, it suffered from mildew. This seems to have been owing to exhalations, during the day, being precipitated in hoar frost at night, when there was no breath of wind stirring to mix them with the atmosphere. Barley and Oats are sound crops, as far as respects the grain, but deficient in straw. Peas and Beans are well podded, but not so rank as usual; and Lint is short in the stalk. Potatoes are scarcely half their usual quantity, but very dry and farinaceous. The effect of this crop upon the prices is not yet ascertained; and we shall only observe in general, that every article of farm produce is now lower than at the date of last Report. It is thought that lands which yield only from four to five bolls an acre, will not pay labour and expenses (which have not decreased) leaving nothing for rent and taxes. Bonaparte's escape from Elba excited much speculation in Cattle. Now, many graziers cannot get the prices they paid for them in spring; and are understood to lose their grass rents, and interest of money. Yet the prices of butcher meat have not fallen in proportion to those of the living animals; which will probably happen when people come to kill and salt up for their private use.

On the 9th of August ult., there was a grand exhibition of Live Stock and Implements of Agriculture, by the Eastern Association of this county, at Trinity Muir, Brechin, the Honourable William Maule, M. P. in the chair; when those which were most approved were honoured with handsome premiums. It would be desirable, were the Secretary of such institutions to communicate the particulars of what passed, because it is impossible for a casual spectator, amidst such a multiplicity of objects, to give any correct account of them. Among the implements, we remarked a coup-cart of a very ingenious construction, whose body was lined with sheet iron in place of boards. An iron plough, and a grubber, each drawn by two horses, were at work in a neighbouring fallow field. It was remarked of the grubber, that it would take too much time to clear it of root weeds, should any get entangled in its coulters. But the Honourable Preses, to whom it belonged, obviated the objection, by observing, that the land about Brechin was so clean, that there was no use for the grubber as a cleaning instrument, but merely to cut and pulverize the soil.

Mr Baxter of Idvies, a gentleman well known for his zeal and success in conducting agricultural improvements, has had people from the south employed during summer in burning clays upon his estate for manure, being excited to try these experiments by communications in the Farmer's Magazine. His burnt clay was too late to be tried on Turnips; but some of it has been applied to wheat, which exhibits a very lively and equable braird. Much clay that contains a mixture of lime, has lately been discovered upon his estate; and as this is represented to be better for burning than what contains no lime, it is presumed he will be induced to try this also; of which the result shall be communicated when it is ascertained.

The Turnips and Pastures suffered much from the drought, and there was hardly any after growth of clover. The Turnips have revived much since the rains came on, and promise to be abundant. Few seasons have been better adapted for the cleaning of drilled crops and fallows, and the wheat seed was committed to an excellent mould. Much of it lay dormant until the rains came on, though it now generally exhibits a very lively and vigorous vegetation. State of markets in our next.—23. *October.*

Letter from Glasgow, 27th Oct.

Although the weather, during the greater part of this month, has been wet and stormy, it was, throughout the whole of September, peculiarly warm and dry, for the season; so that upon the whole, we have not had an unfavourable harvest. The Wheat crop, together with a considerable quantity of Oats, has been got secured in the best possible order. What of the Oats remained in the field till about the middle of this month, suffered considerably from the rain, which still continues to fall, and greatly retards the digging of Potatoes, which are cultivated to a great extent in this neighbourhood. Should this part of the crop remain much longer in the ground, it cannot but be very materially injured. The crop, both of Wheat and Oats, is fully an average. Potatoes are deficient in quantity; but they are considered excellent in quality. Barley, Beans and Peas, are a fair crop. The Turnip crop has also turned out well; but this excellent root is not cultivated to any great extent in this part of the country. Little Wheat is as yet sown on the Potatoe lands; the weather being too wet for that purpose. What has been sown on summer-fallowed ground, exhibits a very luxuriant braird.

Our market is abundantly supplied with grain of all descriptions, and prices continue very low. Old British Wheat is poured in upon us from all quarters; and the requisite supply of *New* is easily obtained from the country adjacent. Great quantities of *New Oats* have already been imported from Ireland, Northumberland, and the eastern districts of Scotland. The Oats obtained from these places this season, we have seldom seen equalled, perhaps never excelled. New Barley has also made its appearance in this market. It has been chiefly obtained from England and the North of Scotland; and is of a very superior quality.

Owing to the abundant crop, and excellent quality of the grain, throughout the kingdom, another year of low prices may be expected, unless our exportations be very extensive. Grain is at present exported from this, as well as from other parts of the kingdom, to the Peninsula; but in very limited quantities. Were these exportations to become extensive, it would somewhat heighten the prices—raise the drooping spirits of our farmers—and prove of singular advantage to the country in general. If the present depression of prices continues much longer, agriculture must inevitably be neglected; and the national evils that will follow this neglect as its necessary consequences, are abundantly obvious to every reflecting mind. It is greatly to be wished, that such prices may soon be obtained, as will afford a fair remuneration to the farmer for his labour; and prevent that spirit of agriculture from declining, which, for the last twenty years, has operated with such vigour and success, and constitutes the great bulwark of our national prosperity and independence.

Present State of Glasgow Markets.

Wheat,	British, old,	26s. to 31s.
	Do. new,	23s. — 26s.
Barley,	English, new,	26s. — 28s.
	Scotch, new,	23s. — 25s.
Oats,	English, new,	24s. — 26s.
	Scotch, new,	23s. — 25s.
	Irish, new,	20s. — 22s.
	Ditto, inferior, old,	15s. — 17s.
Beans, Peas, old,		18s. — 21s.
Oat meal, new,		20s. — 21s.
	old,	18s. — 19s.

Hay, 3*l.* to 3*l.* 5s. per 100 stone.

Inverness-shire Quarterly Report.

The Hay crop was secured about the first of August; the quality excellent; and the quantity about an average. Since the first of August, there has been scarcely a shower to moisten the surface of the ground. Harvest commenced about the 20th of August; and by the end of September, the whole was secured in the Low Country, and in the Highlands, about the middle of October. There never was a finer harvest witnessed in the memory of man. The Barley is excellent in quality, and fully an average. Oats are bulky; but on account of the severe drought, not well filled; and it is feared will not prove well at the mill. The Wheat is a fair crop; though in some places injured by the smut. Turnips, owing to the continued drought, are not improving to the extent they would otherwise have done, had the season been more favourable for their growth. The crop, in general, may be considered deficient. The Clover foggage has turned out to a very poor account, very little of it being fit for cutting, and a great part of it but very indifferent pasture. Cattle of late have declined very much in price; and as every one is fully

stocked, the price will decline farther, rather than advance. There was a great show of Cattle at Beaulie on Wednesday last; small beasts, in good condition, met with a ready demand, at little reduction of price; but lean stock was never sought after; of course, a great many remained unsold. The Potatoe crop is all secured; the quality good; but the quantity at least one-third below an average crop. There is a little demand for Barley, at from 25s. to 28s. per boll; and some fine samples are so high as 30s. The consumpt is principally by smugglers: It is first sold to men, who are looked on as able to pay at their day, which is in general three months. These middlemen retail it out in small quantities to the smugglers on credit, at a small profit. Oatmeal, 20s. to 24s. per boll. No Wheat sold yet at a fixed price. Potatoes, 12s. to 16s. per boll of eight Barley firlots. Butcher-meat, 4d. to 6d. per lib. of 17½ oz. Hay, 10d. per stone of 21 lib. Dutch. The rents nothing reduced, but land let with difficulty.——21*st October.*

Kincardineshire Quarterly Report.

THE weather for at least seven weeks subsequent to the date of last Report (28th July), was highly calculated for bringing the different crops of grain to maturity: And the consequence was, that harvest commenced about the beginning of September, which is a fortnight sooner than last year, and may be reckoned somewhat earlier than usual in this district. During this period, the weather was for the most part dry, with an uncommon degree of sunshine, which permitted every description of field work to proceed with the greatest facility. Pastures, however, became bare, as the rains were never of so long endurance as to make any sensible impression on them; and Turnips also in many instances showed evident symptoms of a deficiency of moisture. The ground, in short, became so parched by the first and second weeks of September, as to make it difficult in many cases to procure a sufficient quantity of water for the use of the bestial, besides occasioning much inconvenience in the working of mills, watering of lint, &c. The weather has been, however, since 17th ult., extremely variable, which has rendered the harvest a more unpleasant task than was at one time expected, and prevented its conclusion till considerably beyond what appearances at first indicated. The copious rains that fell during the remainder of that, and beginning of this month, occasioned a good deal of sprouting among oat-stooks in sheltered situations, but not after all to the extent they would have done, had they chanced to have fallen in a more easterly direction. And besides, they were never of long continuance at one time, and generally succeeded by intervals of drought and sunshine, so as to absorb the greater part of the redundant moisture, before the arrival of next shower. But although the crop was by these means saved from immediate destruction, still a large proportion of it (principally Oats) is stacked in very indifferent order, which will no doubt injure the quality of both grain and straw, as there has been no smart weather as yet to improve its condition.

The crops of this year, though occupying rather less space in the stack-yards than what was once expected, may be rated fully equal to an average in point of grain, and that too of superior quality, in as far as safely secured. Turnips have made great progress since the equinoctial rains. They now assume, in most instances, the prospect of a fair average crop. Potatoes are everywhere of fine quality; but the dryness of the summer has diminished the produce a little on thin land. The weather has been singularly unfavourable to the gathering of this crop; hence a great part of it remains untouched. Pastures still keep fresh; so that Cattle stand in no need of additional food. A large proportion of the fallows remained unsown with Wheat until after the middle of September, owing to the excessive dryness of the ground; but even that period is considered by several of our experienced growers, as sufficiently early to insure a full crop. Early sowing generally produces a small ear; but many are partial to it on account of its producing the plumpest grain. The autumn-sown Wheats of this year look pretty well, considering the enormous quantity of rain.

Markets continue remarkably flat, in comparison with former years. Wheat, which sells at from 20s. to 25s.; Bear, Barley, and Oats, at from 14s. to 17s., according to their respective qualities; and Cattle proportionably cheap, correspond ill—miserably ill indeed—with the engagements which farmers have made with their landlords. Some landed proprietors, deeply impressed with a sense of this, have most generously condescended to accept of a diminution of rent; a circumstance which reflects much honour on these benevolent gentlemen, whether taken in a private or public point of view, and deserves to be imitated by their neighbours.——*25th October.*

Quarterly Report for the Stewartry of Kirkcudbright.

THROUGHOUT the whole of the autumnal quarter, the weather has verged to extremes, and the changes have often been sudden and unexpected. The first fortnight of August was warm and serene; but from that time till the close of the month, it rained almost incessantly. September commenced with prospects very inauspicious to the reapers, (for many had now begun the harvest); it soon however changed, and nearly three weeks of the finest possible weather ensued. By this time a few had completed their harvest; many were far advanced; the bulk of farmers, however, had not more than one-half of their crops gathered into the barn-yard; and a considerable number had not even stored a single sheaf. In this state of things another sudden change took place. It would appear that, during the period of fine weather, materials had only been collecting in the sky for an approaching storm, which towards the close of the month burst out with a fury rarely known in this quarter of the globe. The rains descended in torrents, accompanied with impetuous shifting winds, thunder and lightning, and other indications of a troubled atmosphere. The crops everywhere were drenched; and the shocks, as well as the standing corn, for the most part levelled to the ground. The rivers were swelled to a pitch not

known before in the memory of man, ſweeping before them, not only the ſhocks of corn and ricks of hay, but bridges alſo, in various parts of the diſtrict; ſome of which had remained uninjured for centuries. The ſtorm was ſo unexpected, that no preparation was made to avert the calamity: and, accordingly, the loſs ſuſtained by farmers on the banks of rivers has been immenſe. In October, heavy rains have frequently occurred, but with intervals of ſerene weather, and briſk winds; in conſequence of which the crops are now nearly all gathered, and with leſs damage on the whole than had been anticipated.

Crops of every kind may be eſtimated at more than an average: in bulk they have been rarely exceeded; and the quality of the grain ſeems in general to be alſo good. Wheat has partially ſuffered from ſmut; but is on the whole a good crop. Barley and Oats, in the early part of the diſtrict, may be conſidered as very abundant, and at leaſt of a medium quality. Potatoes are alſo a plentiful crop, but have already ſuffered much, and ſeem likely to ſuffer a great deal more, from the continued wet weather. Turnips are in general luxuriant; and in particular, ſome, manured with clay-aſhes, exhibit as fine an appearance as we have ever witneſſed.

Paſturage for Cattle ſtill continues in the greateſt abundance; and ſeldom have we ſeen ſo plentiful a proviſion for their maintenance during winter. When this is the caſe, it has commonly happened that the demand and price of Cattle has increaſed at the beginning of winter. At preſent it is quite the reverſe. Though the country is by no means overſtocked, Cattle ſeem to be in little requeſt; and the few ſales that have been effected, are at prices ſo low, as to afford nothing to the grazier for his keeping for the half, and in ſome caſes even for the whole year. This circumſtance, even more than the low prices of grain, will affect the bulk of the Galloway farmers. For a long ſeries of years, the intereſts of agriculture have not ſuffered ſo ſevere a ſhock: and a long ſeries of years muſt, in all probability, elapſe, before it recover from the direful effects of it.

A few bankruptcies, theſe however to a conſiderable amount, and among thoſe who were lately believed to be in affluent circumſtances, have recently taken place. Others, it is feared, will ſoon follow; and, where the evil may ſtop it is impoſſible even to conjecture. But we wiſh not to draw a dark picture, or form gloomy preſages of the times. In a country which enjoys the beſt form of government, and the greateſt national proſperity, no particular claſs of the community, unleſs it be their own fault, will long remain depreſſed. So little has been done in the Grain trade, that were we to ſtate prices, they would be merely nominal. The prices of Butcher-meat have fallen a trifle ſince our laſt Report; but it deſerves to be noted, that the fall in fat is much leſs than in lean Cattle.—28. *October.*

Letter from Langholm, 25th October.

THE weather, during the months of harveſt, has been exceſſively variable, with a greater proportion of wet than of dry days, which has rendered the operations of the ſeaſon tedious and difficult.

The early part of the month of August was generally dry, as was likewise the first fortnight of September; but, during the remainder of the month, heavy rains prevailed, particularly on the 26th, when the rivers were swelled to an unprecedented height, and much loss of crop, &c. was sustained on the low lying grounds. The second week of October was remarkably fine harvest weather, which completed the ingathering of the crop in favourable circumstances, as it was in a very critical situation at that time; and we have had constant showery weather ever since.

The crop, in general, may be estimated as approaching to an average; and, though not so bulky as in some preceding seasons, is esteemed good in quality. Turnips have improved greatly during the last six weeks, and the young clovers have a thriving appearance. The crop of Potatoes, a great part of which, owing to the late heavy rains, still remains in the ground, promises to yield a fair return, and of good quality.

There has been very little variation in the price of grain in our markets during the season. They have been nearly stationary for the last twelve months. The prices of stock have varied considerably. The demand for draft ewes has been brisk, with a small advance of price above last year. Black cattle, on the contrary, have not been so much in demand during the season, and prices are considerably reduced. Horses, particularly those of inferior quality, are almost unsaleable.

In consequence of the depressed state of the grain markets, the grazing system is rapidly spreading over the cultivated districts here, which has had the effect of affording a full supply of butcher meat in the market, at a moderate rate; but this resource cannot long support the high rents which the farmer has to pay, notwithstanding it considerably reduces his expenditure in the mean time. The rent of land has certainly got above its proper level, when compared with other marketable articles, and must be brought back to it at the expense of the adventurers of the present day.

East Lothian Quarterly Report.

The past quarter, the most important in the season to the agriculturist, has been singularly propitious to the safe ingathering of the crop. Harvest commenced partially by the 14th of August; and in ten days after, became general throughout the district: By the 24th of September there was hardly a field to cut down in the county, the crop, in the very highest situations, having been as thoroughly ripened as along the sea shore. During the first and last weeks of the above period, the reaping was occasionally interrupted by very soft showers; but, during the greatest throng of the harvest, the weather was most delightful, the reaping, and the greater part of the carrying of the crop, being executed, upon many extensive farms, with hardly an hour's interruption. It however may be mentioned as rather uncommon, that, notwithstanding such favourable harvest weather, greater loss was sustained in a very limited corner of the county, than

what has been experienced in the same situation during the last twenty years. The injury in question was by a shower of hail, on the 18th of August; which, although it continued but a few minutes, yet, as near as could be estimated, beat out, at least, four times the seed, over several fields of potato-oats, which at present are growing as thick and green as a meadow.

The stack-yards, in general, are larger than usual, the crop being likewise productive, although hardly in proportion to the bulk. The condition, as well as the quality of the grain, is excellent; best wheat weighing about 66 lib.; barley 80 lib.; and oats 65 lib. per firlot. But prices are ruinously low for the farmers who have lately taken new leases, as grain of the above quality will not bring more than 27s. for Wheat; 19s. 6d. for Barley; and 18s. for Oats.

Wheat-sowing commenced about a month ago; and as the weather to this day has been every thing that could be desired; the business is nearly everywhere finished, under the most flattering circumstances; the occasional showers, during the last fortnight, having raised the most regular braird on the lands that have been summer-fallowed, and so far softened the bean stubbles, as to allow the ploughing and harrowing to proceed with regularity and ease. Potatoes are good in quality, though not abundant, the crop having rather suffered from the want of rain. Turnips, especially the ruta baga, in many cases, have also been hurt from the same cause; but in numerous instances the crop is excellent, and still improving from the mild moist weather. Ewes, for lambing in the spring, have been bought at nearly similar prices to those of last year; but all other kinds of stock, both for turnip and for the straw-yard, are cheaper than they were last season. Fat Sheep and Cattle have sold at fair prices during the quarter; indeed that branch of agriculture has certainly been the most advantageous to the farmer throughout the whole of last season. Fortunately the young grasses appear well planted among the stubbles, as there are many who look forward to the profits of their stock, as a means of raising money, when grain will hardly pay the charges of raising it, although rent be kept quite out of the question. It will be recollected, that mention was made in the Report for spring, that many fields had been sown with grass-seeds *without harrowing*; it is pleasant now to say, that in every case, it is believed, they have succeeded to the entire satisfaction of the occupier. This appears, at present, to be a real improvement, as there can be no doubt as to the saving of labour, independent of the injury that the corn crop often received from the harrowing process.——25. *October.*

West Lothian Quarterly Report.

This season, upon the whole, has been uncommonly dry; the water has, in most springs, been so weak, as not to supply the usual demand; and the pasture-fields have, in not a few places, been supplied from running streams and other places, in carriages; but the rains, upon the 19th and 20th current, have given us enough both for cattle and for working machinery.

The Grain crop may be reckoned a full average one; Potatoes, although good in quality, and safely got up, are not so productive as last season, owing to the dry weather. Turnips have also suffered from the same cause, and are inferior in bulk. Never were the grain-crops got stacked in better order than this year. I have not heard of a complaint on that head.

But the most serious complaint at present is want of demand and price for farm produce. Wheat, only from 1*l.* 1s. to 1*l.* 3s. per boll of four Winchester bushels; Barley 20s., about six Winchester bushels; best Oats from 18s. to 19s., same measure; Peas and Beans little or no demand as yet; Oatmeal 14d. per peck of 8 lib., *Dutch weight*; Fat Stock about 9s. per stone Dutch, sinking offals; Wintering Stock, although a little lower in price than last year at Falkirk tryst, were almost all taken off at fair prices.

The wheat-seed, both after fallow and potatoes, has been favoured with a dry bed, in this district; and upon the fallows, particularly, the young crop is more forward than usual.

In several farms in this part, we have felt the wheat diseased, not by smut, but by spotted straw, which renders the grain weak and deficient both in quantity and quality; this evil seems to prevail most in low damp situations, and upon soils that are rather soft, and partially near the shelter of plantations.——24. *October.*

Morayshire Quarterly Report.

The oldest man in Moray does not recollect a harvest of finer weather; the labours of the reaper were scarcely interrupted a single day by rain; and, though the winds were occasionally high, little or no injury was sustained by shaking. The crop is above an average. The Wheat suffered some injury, both from rust and mildew; but the quantity hurt is by no means considerable. The Turnip crop is the only one that may not be stated at a full average; it appears to have been hurt by the drought, which, in some situations, has retarded the breaking up of lea for wheat.

The Morayshire Farming Club, having sent a man to Wigtonshire, in April, to learn the proper mode of erecting kilns for burning clay, that process has been tried pretty extensively in this district, and the ashes applied to raise turnips. We are sorry to say, our expectations have rather been disappointed. In the far greater number of instances, the ashes seem to have been productive of no effect whatever; in one or two they have produced a very good crop. We cannot tell if the success there arose from much surface having been burnt along with clay, but are inclined to think so. Perhaps the thing has not yet been so fully tried as to warrant us to recommend an entire abandonment of it; but we are sure, in this district, no such beneficial effects are to be reaped from the ashes of unmixed clay, as it would appear have resulted from them in the south. When moss can be had to burn along with the sides of ditches, an useful manure, we doubt not, may be obtained; and we think the

kiln is an expense that may well be saved, as the materials will burn equally well, if not better, without it.

Cattle markets have been declining during the whole of last quarter; and nothing could be made by grazing. No one is offering for a boll of grain; in short, never was there a greater distress for money; and except there be some alteration for the better soon, there must be many failures in the country. Whether such an alteration is probable, we know not; but by those who have taken land during the last quarter, the present prices of produce do not seem to have been taken as the grounds of their calculations; for, neither do the rents promised, nor the expense of management, bear any kind of just proportion to the price of farm produce. Hay is worth from 6d. to 7d. per stone; Oats 20s. to 21s. per five firlots; Barley 21s. to 24s. per four firlots; Oatmeal 1s. 1d. to 1s. 3d. per 9 lib.; Butcher-meat 4d. to 6d. per lib. of 17½ oz.

'What profit hath a man of all the labour that he taketh under the sun?'——25. *October.*

Perthshire Quarterly Report.

At the date of last report, every thing prognosticated an early harvest; and the succeeding Quarter more than realized every expectation. The month of August commenced with dry, warm weather, and continued throughout very favourable for the ripening process. The occasional showers that fell, with the exception of that on the 14th, were moderate and refreshing; and, by the end of the month, harvest was general in the early districts.

September, till towards the end, was equally favourable for field operations; and it would perhaps be difficult to mention a period in the history of agriculture, when so much work was executed during that month. The only crop that suffered in any degree, was the Turnip, which began to be arrested in growth from the long-continued drought. The rain towards the end of the month refreshed this crop, but tended also to retard harvesting in the later districts.

October commenced favourably for late crops, as well as for preparing the Wheat seed, which on well conducted farms was laid down in good condition. From the middle to the end of the month, a great deal of rain fell, which in many places proved detrimental to the taking up the Potatoe crop. Pasture, however, improved considerably; and, upon the whole, the farmer never had occasion to be better pleased with a Harvest Quarter. The following is an abstract o the weather for the three months.

	Number of Fair Days.	Number of Rainy Days.	Quantity of Rain.	Mean Temperature.
August, -	- 9	22	1.324	59.903
September,	- 14	16	1.893	53.304
October, -	- 16	15	3.362	47.262

The character of the crops may be stated in a few words.—Wheat, with a few exceptions of mildew, and these only partial, fully answers the expectations stated in last Report. Barley and Oats of ex-

cellent quality; but, on dry soils, the grain rather diminutive, owing to the dryness of the season. Turnips were for a long time retarded; but latterly have improved much, and will be nearly an average crop. Potatoes of a fine quality, but deficient in quantity, and not got up in very good order.

Of the markets, it is difficult to speak. If prices have moved since last Report, it has been almost uniformly downwards; and at present may be quoted somewhat below the average of last Quarter, if indeed they are any thing but nominal. Wheat, 23s. to 30s.; Barley, 15s. to 20s.; Oats, 12s. to 17s.; Oatmeal, 1s. 2d. per peck.

The Cattle market, which at the date of last Report had not suffered the same depression that Grain had, has since been on the decline, and at present threatens to fall still lower. Farms continue to be still less and less in demand; and altogether it is impossible to contemplate the probable result of the present state of agricultural affairs, but with sentiments of the deepest despondency.——*1st November.*

Ross-shire Quarterly Report.

The months of August and September having proved singularly propitious for ripening and harvesting the crop, that important process has been accomplished in the most satisfactory manner. Reaping commenced partially about the middle of August, but only became general on the 1st of September; at which period a severe drought set in, which speedily rendered the greater part of the crop ready for the sickle; and a continuance of similar weather prevailing throughout September, the Corn was stacked with the greatest rapidity, and in the highest condition. In many cases, the carts closely followed the shearers, where the Corn was dead ripe, and free of mixture of greens,—such as second growth, weeds, or young grasses, which had been checked by the uncommon dry weather. On many farms, considerable inconvenience was experienced, from a want of water; and wells were dry, which had not been seen before in that state. Some loss of Corn was sustained by shaking, particularly on the 4th of September, as most of the crop was then ripe, and little of it cut down. Almost all the White Crop was in the stack-yard in the month of September; and since then, the Beans have been also got in good order.

The crop bulks well on deep moist soils; but on those of an opposite description, it does not exceed an average in that respect: At the same time, as it is in general expected to be highly productive, there is no doubt but it will be found above an average in point of quantity, excellent in quality, and in very superior condition. The Potatoe crop turns out a poor one on dry sandy lands; but on deep soils they are large, and of fine quality, but not regarded as plentiful. Turnips seem to have suffered most by the drought; for although there were many promising fields of them at the beginning of the season, it is a rare thing now to see a field, which would be reckoned a full crop in ordinary seasons. Pastures have been ex-

tremely bare during the latter period of the season; and the want of demand for Cattle has aggravated in a great degree that evil.—Clover foggage also soon became scarce, and has caused the Hay-stacks to be earlier broke upon than usual.

The Fallow lands, and several fields of After-grass, have been sown with Wheat in excellent order; and even the wettest fields will yet bear much more rain, before they are so saturated as to render them unfit for working. Indeed, we have not hitherto had more rain than is useful; for the weather only broke about ten days ago; and there have not been any excessive falls of rain, so as to drench the land, as is frequently the case at this time of the year.

The Markets for all kinds of farm-produce are depressed to a pitch below what they have been for the last twenty years. We have no demand for Corn; but according to the prices in the South, Wheat to be exported thither is not worth more than 21s. to 22s.; Barley, 16s. to 17s.; and Potatoe-Oats, 15s. per boll. Cattle are low in a proportionable degree. At Beaulie Market, on the 18th and 19th current, Stots in high condition could not be sold for more than from 5s. 6d. to 6s. per Dutch stone, sinking the offal. The severity and injustice of the manner of levying the Property-tax from farmers, will now be obvious to every one. While our capital is vanishing from before our eyes, and many farmers in a greater or lesser degree verging towards ruin, what a hardship does it appear that our class should be singled out from the rest of the community, and called upon to pay a tax upon a fictitious income, while our fellow-subjects, of other professions, are exempted, when circumstanced in a similar manner! We have not yet heard of any reduction of rent granted by the landlords of this county; but are sensible many require, and well deserve aid, at so urgent a crisis; and it shall be announced, with sincere gratification, so soon as any one comes forward in a measure, at the same time so well judged for their own interest, and benevolent to such as merit it.——*26th October.*

Quarterly Report for Roxburghshire.

The weather for the last quarter, and indeed throughout the season, has been most propitious. Hence, every species of grain is of the first quality, fully an average crop, and, throughout the district, secured in the best possible condition. The harvest commenced much about the same period as last year; but, in the course of a few days, it was discovered, that the whole crop in the lower part of the district was completely ripe, almost without the possibility of procuring additional reapers to cut it down. Fortunately, very little loss ensued; but, in many cases, the most unprecedented wages were given for harvest work; and this may ultimately be attended with the most mischievous consequences in the present miserably depressed state of the grain markets, as we are by no means of opinion with some people, that the continued low price of grain will produce a corresponding reduction in the price of labour.

A very conſiderable reduction has taken place in the price of grain ſince the new crop came into the market. The beſt Wheat is ſelling at this period at about 40s.; Barley about 19s.; and Oats about 18s. per boll of 6 Winchester buſhels: And theſe prices are with difficulty obtained, owing to the very limited demand. If the Cattle were houſed, and the uſual quantity of grain brought to the market, we are at a loſs to conceive how it is to be diſpoſed of, unleſs a foreign demand takes place. Potatoes are rather below an average crop, but excellent in quality, and ſecured in fine condition. The Turnip crop is much below an average one, having ſuffered ſeverely from the continued dry weather during the harveſt; and they have likewiſe, in ſeveral inſtances, been very much injured by the diſeaſe of Fingers and Toes.

A very conſiderable fall has taken place in the price of ſtock for feeding upon turnips. Wedder Sheep are fully fifteen, (particularly of the Cheviot breed), and Cattle about twenty per cent. lower than laſt year. Lean Stock for wintering have ſuffered an equal diminution in price, and are almoſt unſaleable. The ſtate of the Fat market at Morpeth moſt completely correſponds with this gloomy picture of the agricultural intereſt of this county; and, upon it, the farmers rely for a very conſiderable proportion of their returns. The beſt Mutton is ſelling at about 7s., and Beef about 6s. per Engliſh ſtone, sinking the offal. We cannot view the preſent ſtate of farmers without the moſt ſerious apprehenſion, burthened in many caſes with enormous rents, a continued increaſe in the price of labour, and an unequal and moſt grievous rate of taxation. This ſyſtem cannot long be upheld, but muſt inevitably produce the moſt certain ruin to a conſiderable proportion of the farming intereſt.—23*d October*.

Quarterly Report for Stirlingshire.

The whole month of September laſt proved moſt favourable to the operations of harveſt; and almoſt all the Wheat, Barley, Oats, and even a good deal of the Bean crop, in the lower diſtricts of this county, was ſecured in the beſt condition. In the beginning of October, too, the weather was not ſo unpropitious as to do much injury, at leaſt no very material injury, to the crops then abroad. The latter part of the month, however, has proved very wet; and ſome of the Beans that remained in the field have ſuffered, particularly in the quality of the ſtraw, while the pulſe muſt be ſomewhat diſcoloured, although it is believed little, if any of it, is ſprung, or has eſcaped from the pod. A few Tares and Peas that were out during the rains, have ſuffered more. In the high diſtricts, the Oat crop, that was ſtill out when the heavy rains ſet in, has been ſeverely damaged, and the ſheaves are much ſprung. Laſt night and this day muſt cure every thing that is not paſt curing; for the north wind has been uncommonly dry and piercing.

The Wheat crop, though generally conſidered plentiful, and good in quality, is certainly not ſo regularly repleniſhed in the ear as has been obſerved in ſome ſeaſons; there being, generally, ſeveral defective glumes in almoſt every ear, ſome entirely empty, and others containing grain much ſhrivelled.

The Oat crop on ſoils adapted to that grain, and where it has been well ſaved, is certainly much ſuperior to that of laſt ſeaſon, as is alſo the Barley crop. Both theſe are conſidered above average crops in this county. The Bean crop may alſo be conſidered a full one. Potatoes are not generally thought to be productive. The plants of this root were chilled in their infancy by the wet weather in May, and received a conſiderable check again from the drought in July. Little Turnip is cultivated in the county, at leaſt little compared to the breadth of land well adapted to produce it. Many farmers, even in ſituations where no foreign or adventitious manure can be obtained, or, at leaſt, where none is uſed, cultivate Potatoes, which they generally ſell off the ground, in preference to Turnip. The effects of this ſyſtem are palpable. Turnip grows well in the dry lands of the county, and, where the conſumption is underſtood, affords good returns; though the ſpring market for Beef is generally glutted by the immenſe diſtilleries in Clackmannanſhire. It may be, perhaps, ſafely affirmed, that, though particular ſpots manured by the droppings of the cattle fed on the refuſe of theſe diſtilleries, are rendered very rich and fertile, the agricultural intereſt of Scotland in general is injured by them, while the lieges are ſerved with vapid and even unwholeſome food from the bloated carcaſſes of the animals fed there; and more than half poiſoned by the unwholeſome ſpirits produced by theſe elaboratories of liquid death. Comparatively little Barley, the produce of Scotland, is uſed in theſe diſtilleries. The greater part is imported from Norfolk.

The paſtures have been luxuriant during the ſeaſon, unleſs on ſome very arid ſoils. The ſtock, however, it is alleged, has not fed ſo truly, nor improved ſo faſt as it did, on the ſame lands, laſt ſeaſon; and the graziers affect to complain of this. But the queſtion with them is, not whether the crop of herbage in 1814 or that in 1815 fed the fatteſt ſtock; but which fed the greateſt quantity of fair, marketable beef or mutton, or improved the greateſt weight of carcaſs, to afford them the beſt return. The effects produced by the herbage have been ſuch as might reaſonably have been expected in each ſeaſon, where lands were fairly and moderately ſtocked in both years. For, the leſs the quantity of herbage from the ſame plants, the finer it may probably be in quality, as is the caſe with the produce of fruit-trees. The crop of Hay, in the Carſe particularly, was a full one, and the after-crop has been generally luxuriant. The young Clovers and Ray-graſs are, in moſt inſtances, well planted. All ſorts of grain are dull of ſale, and prices very low.

Some Flax is cultivated in this county. The crop of it, this ſeaſon, has not been great. This plant is the bane of good huſbandry, and ſhould be abandoned in Scotland.—*29th October.*

Tweeddale Quarterly Report.

At the date of laſt Report, the Oats ſeemed to be late, and continued very green through a great part of Auguſt; but the laſt eight days of that month, and the firſt week of September made a rapid change on them; and harveſt became general about the 4th, except

in some high situations. The hoar frost on the morning of the 7th of September, considerably hurt several fields of Oats, where much laid, or lying near marshy ground. In other situations, that grain is good and abundant, and may be reckoned above an average. Wheat, Barley and Peas are all good in general, and fully an average crop. Potatoes are excellent in quality; but in many places, where the stems were completely killed by the frost on the 7th September, they are deficient in bulk. Turnips are a fair average crop, and, from the late rains, still continue growing. Both sown and meadow Hay are weighty crops and well got. Most farmers in this district have stacked their Hay, as it is almost unsaleable at from 6d. to 7d. per stone, from which, and the very low prices of all kinds of grain, it cannot be seen from what the farmers are to pay their rent,—as taxes and expenses of various kinds (all of which still continue high) will consume every shilling that can be raised from a great many fields, I might almost say farms. Sheep Farmers have had a good season, as both Sheep and Wool (especially coarse Wool) never sold higher; but of late the prices of Sheep have also been considerably on the decline. Cattle too have but a dull sale at reduced prices. Some landlords have generously made a considerable reduction in their rents, at least for the present, till they shall see how times may change. Some have taken up the leases, and either retain them in their own occupation, or let them at less rent; and, much to the credit of the gentlemen of this county, I have heard of no instance of any of them refusing to liberate their tenants on application being made to them for that purpose; but, in this case, a number of farmers must be at a great loss to know or resolve what to do, who have taken farms at rack-rent a few years ago, and laid out a good deal of capital in improvements, in the reasonable expectation of remuneration before the expiration of the lease, which must all be lost in giving it up; and, in this dilemma, I am afraid some of them may continue, in hopes of a favourable change of times, till their ruin may become more complete. There have as yet been very few failures in this county among the farming class; but a very great alteration must soon take place in the prices of farm produce, or a very considerable reduction in rent, taxes, and the expense of labour, as it is impossible that such as have taken leases of farms at a rack-rent for a number of years back, can long go on.—Price of Oatmeal at Peebles yesterday, 14s. 3d. to 15s. per boll.—*25th October.*

ENGLAND.

Cumberland Quarterly Report.

Since last Report we have enjoyed one of the best harvests ever remembered. Grain of every description is safely and well secured. Wheat an excellent crop in general.—Barley, in quantity and quality, not an average one.—Oats very abundant on all the new enclosures, and above an average.—Potatoes have not been planted to the extent of some former years. They are good in quality.—Turnips nearly an average crop; occasional patches have wholly failed.—The cul-

ture of Swedish Turnip increases.—Mangel Wurzel is not a very heavy crop. Many give the leaves to the cattle, and they think with great advantage.—Our meeting at Workington was very numerously attended; more than 450 sat down to dine, when the usual toasts were drank. Messrs Ferguson, Fortescue, and Blamire, the Stewarts of this year, secured the esteem of all the visitors by their urbanity, attention, and condescension.—Mr Curwen's crop of Potatoes and Turnips, particularly his Swedes, were very good. All the inspectors of his farm were pleased with the cleanness of his green crops. A sweepstakes was entered into, for the purpose of encouraging a good breed of Short-horned Cattle. The practice of the Earl of Lonsdale in selling his improved breed of Short-horned Cattle and Sheep for moderate prices to his Farmers, ought to be generally followed. This county has great cause for thankfulness in possessing a Curwen, an Egremont, and a Lonsdale. They have each contributed their share to the advancement of its agriculture; and the farmers, we hope, will justly appreciate their merits. It is impossible to conjecture what may be the result of the present times. Government (see the Chancellor of the Exchequer's speech) refer us for redress to the landlord; the landlords, in general, to Government, for reduction of taxes; and to servants for diminution of wages. Servants tell us rents must fall, and seem to value their services nearly as high as usual. What then must be done? Why are Societies formed, if they pay no attention to the welfare of those who form them? From Agricultural Societies all resolutions ought to emanate. What have they yet done? The government, the clergy, the manufacturer, above all the poor, ought to remember the ruin of agriculture must be attended with that of all the rest.

Letter from Devonshire, 23d October.

Our harvest was early, and one of the finest ever remembered; and the Corn, in general, is well saved. Barley and Oats are good in quality; the former much better than last year; but the Wheat, from the blight and mildew, will prove a poor crop. Great are the complaints, and those from farmers who thought differently at harvest, but now, on thrashing out, find little more than half a crop; it is what I always expected, as I stated in my last. Our Turnips are much recovered by the late rains, as well as the Pastures, which before were much burnt up. In consequence of the great drought, our markets were overstocked with cattle, which were sold very low, and many could not find purchasers at any price. Potatoes are a poor crop from the long drought, and are advancing in price. The price of Beef and Mutton is kept down by Pork, which is now selling by the carcass for 4d. per lib. and until a great many of the fat pigs are gone off, we cannot look for any amendment in the markets for Fat Cattle. Our prices for Beef are from 4d. to 6d. per lib.; Mutton 4½d. to 5d. & 6d. per lib. The contract for Beef to the Navy was taken at 2*l.* 12s. for 112 lib. near a year ago, and is now about expiring. Many of the Fat Cattle are bought in as low as 42s. per 112 lib. alive. There is at present no contract for the Navy

for Biscuit. Our Corn Markets are low, and still dropping. The prices are, Wheat, 7s. to 8s. 6d. per bushel, weighing 62¼ lib.; Barley, 3s.; and Oats, 3s. The Markets are not only low, but the demand is small, partly owing to the want of water at the Corn Mills; and a great difficulty attends turning farm produce into money, even at these low prices. No man can contemplate the present depressed state of Agriculture, without dreading the consequences that will follow. Large tracts of land are thrown up by the tenants, and now in the hands of the landlords; a great deal is badly cultivated, and not a little lies entirely unproductive.

Letter from the Neighbourhood of Lancaster, October 25th.

During harvest we had three weeks of the finest settled weather, and *most* of the Grain was secured in good order; since which, it has been very rainy, except for the interval of a week, that enabled us to clear out the latter end of our crop, after being knocked about with tempestuous weather, which occasioned some loss.

The crops of all descriptions are supposed to be a good average. Some of the Wheat does not turn out equal to appearances, and we are disappointed in its quality. The excessive wet has caused nearly all farming operations out of doors to stand still; many that have usually finished their Wheat-seeding by this time, are only half through, and some have not sown a grain. Indeed the land was never so wet for so long together at this season, in our recollection. The same reasons have prevented the Potatoes from being got up, and in the low lands they prove rotten; except for this they are an abundant crop. Turnips are very partial; some have entirely failed, and some are excellent; never was there a finer season for their growth in dry land. Lean Cattle are extremely dull of sale, and cannot pay the breeder at present prices; two years old Heifers at from 5*l.* to 8*l.* per head; Lean Oxen nearly unsaleable. Beef 5½d.; Mutton 6d.; Pork 5d. per lib. by the carcass, sinking the offal. In the Butcher's Market Beef 4½d. to 7½d.; Mutton 6d. to 7½d.; Pork 5d. to 6d. Calving Cows, and those in good milk sell well, from 15*l.* to 20*l.* each. Horses are a great drug, there are more in the country than are wanted; almost every farmer wants to sell, and can find no buyers, except for those which possess both youth, beauty, and good action; very good hackneys and gig horses may now be purchased at 18*l.* to 25*l.*, five years old.

If things continue so dull, breeding will become an unprofitable, consequently an unfashionable business! and when we contemplate the price of Grain, our prospect is only the more discouraging.—Prices as follow. Wheat 8s.; Potato Oats 3s. 6d.; Barley 3s. 4d.; Beans 6s. Cheese experienced a depression from 3*l.* 10s. to 3*l.* and under, for 120 lib.; Butter 1s. 3d. per 18 oz.; Oatmeal 33s. per 240 lib.!! Leicester Wool, or that suitable for combing, 2s. per lib.

On the other side of the question, we cannot get labourers good for any thing under 2s. 6d. to 3s. per day: Hired servants, men in

the house, 15*l.* to 20*l.*; women 7*l.* to 9*l.* per annum. Taxes higher than ever. All Groceries, Iron, &c. &c. are almost beyond our reach, and mechanics exorbitant in their charges. Rents do not lower much, though there is less avidity in purchasing land. If it was not for an expectation (perhaps not to be realized) that times will mend, there would not long be a farmer in the country, and the land would be cultivated by those only who were so unfortunate as to be the owners of it. It is very evident, that if labour, taxes, &c. do not reduce, or the price of Grain advance, we must learn to do without bread, *in this part of the country at least*, as it cannot now be grown without loss.

Letter from Liverpool, 23d October.

We should consider it great presumption to give an opinion of future prospects. One person's opinion is just as good as another's; and as we never know 'what a day may bring forth,' it would be folly to attempt it, being more likely to be incorrect than otherwise. One thing however seems to be very generally agreed on, and that is, the prices of Corn cannot possibly be much lower.

From the best information we can obtain, we shall endeavour to give you an account of the exports from Great Britain and Ireland during the last three months. The quantity of Wheat shipt, shipping, and to be shipt, for Lisbon, Oporto, Cadiz, Gibraltar, Corunna, Barcelona, Malaga, Leghorn, and Naples, is fully 400,000 Winchester bushels, chiefly old kiln-dried Irish, at from 5s. 6d. to 8s.; with some Dantzic in bond at 8s. 6d. to 9s. per 70 lib.; with about 20,000 barrels old stale American Flour,—one half before the battle of Waterloo to Antwerp, and the remainder to Lisbon, at 18s. to 28s. per barrel of 196 lib. Also about 10,000 quarters of foreign Beans, in bond, have been, and are shipping, principally for Gibraltar; and probably 20,000 bushels old Irish Barley, for Lisbon. To this may be added, 10,000 barrels American stale Flour for Rouen, and 10,000 bushels of French Wheat, in bond, belonging to French account, are under orders for immediate shipment for Marseilles—all from this port.

The quantity of Wheat exported from London and other ports in this kingdom, as well as from Ireland, chiefly for Portugal, Spain, and Italy, with a little French, on French account, to France, from London, during the same period, may be, from the best information we can obtain, fully 1,200,000 Winchester bushels;—making a grand total of 1,600,000 bushels of Wheat, besides Flour, Beans, Barley, &c.

Our London letters say that the foreign demand has entirely subsided there. Here still a little is going forward; also in Ireland, where considerable shipments are making for the before-mentioned markets. How long these orders are likely to continue, we cannot pretend to say. Our future prices must, in some measure, depend on their continuance; but hitherto they have not had the least effect; on the contrary, fine Wheats, both here and in London, (none other

being saleable for home use), are still looking down;—even the kinds suitable for exportation are still rather on the decline, with about 300,000 bushels of them still remaining in this market. It is said the crops in Spain, Portugal, and Italy, have failed. Also in France and Germany there is said to be a partial failure. In some, or most parts of France and Germany, it is however known, that the crops have been great. Also in America, the last crop is said to be very abundant, in addition to a very heavy stock of old Wheat in the hands of the cultivators, which, with the surplus that can be spared from Canada, Great Britain, Ireland, Dantzic, and the other ports in the Baltic, as well as from the ports in the White Sea, will be fully sufficient to make good the deficiency.

Before the export demand began, our stock of old Wheats in this market was nearly one million of bushels;—principally of middling and very inferior quality, and absolutely unsaleable for home consumption at any price. The stocks in London, and other ports, were equally large in proportion; and had it not been for this vent, prices must have sunk to almost nothing, as the crops throughout the empire are very abundant, which in our opinion proves, very clearly, that, with a good crop, we grow more than is equal to the consumption; and as we cannot calculate upon a continuation of a foreign demand, we think it is high time agriculturists should begin to turn their attention to the growth of something else, in order to keep up the cultivation, and lands taken in for that purpose, and to give employment to agricultural labourers to attain that object. We see nothing so desirable as the cultivation of Flax, which with Mr Lee's recent discovery in the management of that article, opens up a new field to the agricultural and manufacturing world, which at present is better protected than Corn, even by the late Corn-bill. For the duty on the import of Flax is 10*l.*, and the charges of freight, insurance, &c. 7*l.* to 8*l.* in addition. We believe Government also grants a small bounty on its cultivation in Scotland. By proper attention and management, we might grow as much as we can consume, and in time be able to rival the French cambrics. We are however aware, that, in speaking on this subject, we are wandering from what we have some knowledge of, to what we have no knowledge of. We wish to be understood as only throwing out a hint to some of your numerous readers, who are more competent to write on the subject.

We have had some new Irish Wheats and Oats; also a little Wheat from Wales and Scotland:—the qualities of which appear much superior to last year's, but scarcely equal to the crop of 1813. We have, however, very little demand for new grain, as the farmers bring forward to the different markets more than is equal to the demand, and have at present the markets to themselves. How long they may be able to continue we cannot say; but don't expect much sale for imported Corn till after Christmas.—Annexed is a State of our present very low currency.

Prices at Liverpool, Saturday, 21st October, 1815.

Wheat, per 70 lib.

English, old, 8s. 9d. - 9s. 0d. Fine 9s. 6d.
" new, 8s. 6d. - 8s. 9d. " 9s. 3d.
Irish, old, 5s. 0d. - 6s. 0d. " 7s. 0d.
" new, 8s. 0d. - 8s. 3d. " 8s. 6d.
Scotch, old, 5s. 0d. - 6s. 0d. " 7s. 6d.
" new, 8s. 3d. - 8s. 4d.

Barley, per 60 lib.

English, 4s. 0d. - 4s. 3d.
Scotch & Irish 3s. 4d. - 3s. 6d. " 3s. 9d.

Beans, per quarter.

English, 34s. 0d. - 36s. 0d. " 38s. 0d.
Irish, - 32s. 0d. - 34s. 0d.
Scotch, 32s. 0d. - 36s. 0d.

Oats, per 45 lib.

English, - 3s. 0d. - 3s. 2d. Fine, 3s. 4d.
Irish, new, 2s. 10d. - 3s. 0d. " 3s. 1d.
" old, 2s. 6d. - 2s. 8d. " 2s. 9d.
Scotch, none.

Oatmeal, per 240 lib.

English, 28s. 0d. - 30s. 0d. New, 34s. 0d.
Irish, 24s. 0d. - 26s. 0d.

Malt, per 36 quarts.

English, - 9s. to 10s.

Flour, per 240 lib.

English, 40s. 0d. - 42s. 0d. " 44s. 0d.
Irish, - 32s. 0d. - 34s. 0d. " 36s. 0d.

IMPORTATIONS *of* GRAIN *into the* PORT OF LIVERPOOL, *from* 18*th July* 1815, *till* 17*th October* 1815 *inclusive.*

Date	Description.	qrs. wheat	qrs. Barley.	qrs. Oats.	qrs. Malt.	qrs. Beans	qrs. Peas	qrs Rye	cwt. bran	cwt. shel'd barley	Flour, 240 lib.	Oatmeal, 240 lib.	Americ. Flour. Barrels 196 lib.
Aug.	Coastwise	7400	9	561	5298	1155	305	2	40	71	974	469	—
	Irish -	7292	3841	16552	—	398	—	63	1582	—	1923	200	—
	Foreign	—	—	—	—	—	—	—	—	—	—	—	10,623
Sept.	Coastwise	17107	60	89	8147	1601	37	16	—	10	2636	34	—
	Irish -	2774	3814	7981	—	219	—	2	536	—	1080	550	—
	Foreign	—	—	—	—	—	—	—	—	—	—	—	7,849
Oct.	Coastwise	3170	22	200	4081	1075	26	—	—	120	1011	320	—
	Irish -	4061	872	17212	—	34	—	—	1030	10	796	—	—
	Foreign	—	—	—	—	—	—	—	—	—	—	—	113
	Total -	41804	8618	42595	17526	4482	368	83	3188	211	8420	1573	18,585

Northumberland Quarterly Report.

THE weather through the last Quarter has been in general very favourable for every kind of Corn crop. The month of August was mostly fine and warm, with intervening moderate rains. The last week of August, and three first weeks of September, were remarkably dry and hot, which ripened the corn so quickly, that the whole crop was ripe almost at the same time; and hands could not be procured to cut it so readily as it ought to have been. From the continuance of so long a series of dry weather, the crops were all well harvested, and without any loss by wind or wet. About the latter end of September, and beginning of October, some moderate rains put the summer-fallows into a very fine state for sowing with Wheat; during which period, the greatest part of such fallows were got sown; some Bean lands are yet to sow. The latter end of October has been very wet, with a remarkably high wind on the 20th.

The Wheat crop is in general good, there being little deficiency in the ears; and the grains are well perfected. In a few places, there was some rusted, or fungused Straw; but on the whole it may be considered as somewhat above an average crop.

Barley and Oats, as well as Peas and Beans, have been all well harvested, and may be taken as fair average crops.

Turnips upon dry lands were checked in their growth, and materially injured by the dry hot weather in September; and considerable portions were destroyed by the grub. From these deficiencies, good crops are selling at 8*l.* an acre, with an expectation of their being higher.

The Hay crop was very abundant, especially upon old grass lands.

The prices of Live Stock keep uncommonly low; Fat Cattle being only from 5s. 6d. to 7s. per stone of 14 lib. sink; Fat Sheep, from 6d. to 7d. per lib. sink; and Lean Cattle and Sheep were sold at St. Ninian's and Wooler Fairs, considerably lower than of late years.—Long-wooled Ewes, about 18 lib. per quarter, at 35s. per head; and Cheviot Ewes, from 18s. to 22s.

The Corn Markets are also lower,—Wheat being only from 5s. 6d. to 6s. per bushel Winchester; Barley, from 2s. 8d. to 3s.; and Oats, from 2s. 9d. to 3s.——*26th October.*

Nottinghamshire Quarterly Report.

The season was remarkably propitious for harvesting the grain; the whole therefore was secured in the best condition, and without interruption; there being numerous hands also, the expenses this quarter have been less than farmers have experienced for several years. Some rain has fallen at intervals since harvest, which put the ground into excellent order for sowing Wheat, so that it has seldom been better done; and the early sown looks well. The weather has lately become variable, and it is probable some ground will be in too wet a state for latter sowing.

The new Wheat varies much, yet it may be estimated at something more than an average crop. In some cases it is fully equal to the growth of 1813; and although some of it does not yield well, it is in almost every instance superior both in quantity and quality to the best of last year's growth. Barley is likely to prove nearly an average crop; the quality is good. Oats are abundant, as well as Beans, which are a very full crop, and are secured in excellent order.

All the crops of Ruta Baga and Turnip have much improved, and particularly so, where the row culture has been practised with requisite attention; but the operations of cleaning could not be done, in many cases, before harvest, as the plants were never known to grow more slowly from their commencement; consequently, many farmers had not spirit to pursue, with vigour, the system so well begun, on account of the number of hands required. Good crops of Turnip are now selling at about 5*l.* per acre. Potatoes fall short of an average crop; the present price is at about the rate of 2s. per cwt. Hay is worth from 4*l.* to 5*l.* 5s.; and Lintseed Cake 11*l.* 11s. per ton.

Horses, fit for the Southern dealers, are in request at good prices; but such as are proper only for stage-coaches, posting, and waggoners' or farmers' use, as well as young horses and foals, are plentiful, and can scarcely be turned into money. Fat Beef and Mutton are readily sold; Beasts at from 7s. to 8s. 6d. per stone, and Sheep from 7d. to 7½d. per lib. and sink offal. Hides are now worth only 3s. 6d. per stone, and Tallow 6s. 6d. per stone. Pigs are from 20 to 30 per cent. lower than the prices of last year. Good Cows in profit, or nearly so, are well sold. Lean Beasts, in general, are at very low prices. Store Sheep were much inquired for some time ago; but the prices have lately decreased. Long Wool maintains the last quotation; and there is a demand for Fine Fleeces, which now sell better. The late Cheese fairs were well supplied; good Cheese was sold at from 6d. to 7½d. per lib., and inferior at 4d. per lib.

The supply at the Corn-markets more than equals the demand; and, as there appears to be a general want of money, sales are effected upon terms extremely disadvantageous to the growers. Wheat from 48s. to 56s.; Old ditto lower. Barley and Beans 30s. to 32s.; and Oats at from 18s. to 22s. per quarter; and it is to be regretted, that owing to the depression, the legal measure is not wholly adhered to.

Hops were a partial crop. Some of the best were sold at from 11*l.* to 12*l.* 12s. per cwt. at the first fair: They have since lowered considerably, as 10*l.* 10s. per cwt. could scarcely be had for the best; and some very inferior have been selling at 4*l.* 4s. per cwt. It is very probable that the best Hops will be sold at an advance upon present prices, as they are not plentiful.

At the Statute for the hiring of Servants, held at Southwell on the 21st inst., wages declined from 15 to 20 *per cent.*; and, as little hiring was done, they are expected to be still lower at the other statutes.——*24th October.*

East Riding of Yorkshire Quarterly Report.

Those pecuniary embarrassments, which, twelve months back, the farmers principally suffered, are now extending to all ranks of society in this Riding. Though the landed proprietors have, within the last 15 years, had a prodigious increase of rental, yet, without any apparent alteration in their style of living, that increase was scarcely sufficient to enable them to meet the accumulation of taxes, and the advanced price of every article of life. Consequently, the inability of tenants to fulfil their pecuniary engagements, occasioned immediate embarrassment to the land-owners, whose difficulties are increased by the general great reduction of rents that is now taking place. Rigid economy is of course resorted to by these two classes; the effect of which is, that the merchants and retail traders are burdened with goods for which they have no market; and the labourers, in every situation, are destitute of employment. Many who warmly opposed the Corn Bill, have lately been willing to admit, that much ruin in the Commercial, as well as the Farming interest, might have been averted, had it passed at an earlier period.

In this time of general depression, it cannot be imagined that the detail of agricultural operations can possess much interest; indeed, on the whole, cultivation is dreadfully running back, and farms generally appear to be getting into a slovenly and deserted state. To reduce every expense possible, seems to be the principal object of the occupiers of land; and the reduction that has taken place in their capital, actually prevents many from employing the necessary force to carry forward their concerns. It is a pleasure to me, however, to have observed a few instances of spirited cultivation, the most novel of which is the burning of clay; (novel at least here, though your correspondent J. G. F. in your last Number, proves it to have been practised near a century ago); and this has been executed upon a considerable scale by Sir Henry Vavasour, Baronet. The ashes he has laid upon summer-fallows for Wheat; and I beg here respectfully to call upon that gentleman, should this Report meet his eye, to favour the public with a detail of his experiment. Should it be found to answer the purpose, as fully as it has been represented, its introduction will be to clay soils, what the introduction of Turnips was on light ones—the formation of a new era in farming. I am also happy to mention the increase of the drill husbandry of Turnips, on single bout ridges, on our Wolds, a district highly suitable for such an improvement.

The weather, from the second week in June, to the present time, has been very favourable for the farmer and grazier. Our Hay and Corn harvests yield a full average crop; well got, and at less than the usual expense. Potatoes and Turnips are good, excepting those instances of the latter upon the Wolds, where they have been sown according to the old, and still too general, broadcast system. The Pastures have been excellent, but, I am sorry to add, not so fully stocked as they ought to have been, from the scarcity of money. This circumstance has also occasioned a greater quantity of land to be mown than usual; and consequently Hay is reduced to a low price. Much grain has already been thrashed; and the samples are considerably better than those of the last year. It is to be apprehended, however, that the necessities of the farmers having compelled them to bring it into the market at so early a period, may occasion much waste, as the Corn is not yet sufficiently dry for the merchant's granary. In the month of August, we were flattered by a small temporary advance in the price of both Corn and Fat Cattle; but, alas! that delusion was quickly succeeded by falling prices; and almost every article of farmers' produce is still on the decline. The present rates are, for prime samples, Wheat 50s.; Beans 30s.; Barley 28s.; Oats 20s. per quarter, Winchester. Beef 6d.; Mutton 7d.; Pork 5d. per lib. sinking the offal.

The reduction that has taken place in rents, to commence from Ladyday next, is generally supposed to be about 20 *per cent.*; sufficient certainly to embarrass the landed proprietors, many of whom have already emigrated to the Continent, and many more, it is to

be feared, will follow. Yet, even this reduction, liberal as it appears, will not enable the tenants to carry on their business, should there not be a speedy advance of prices. Thus is the landed interest brought to the lowest ebb; and the home trade (which is certainly the principal, and the best trade) of our manufacturers, is almost annihilated. Perhaps the only mode of alleviating these evils, will be to advance the schedule of the Corn-Bill; and it is most earnestly to be wished, that, from every quarter, petitions to that effect should be transmitted to the Legislature.—*October* 26.

Quarterly Report for the West Riding of Yorkshire.

As complaints are useless, less may be observed on the present unhappy and depressed state of British Agriculture; but if the present degree of adversity continue long, it must be attended by very fatal consequences to the best interests of the empire. Millions of acres will return uncultivated into the hands of the landowners, while the vast previous imports, so impoliticly and unseasonably permitted, have caused all the mischief, without any benefit whatever, to the community at large.

The crop of Wheat, and all other sorts of Grain, may be pronounced better than an average one; and, of course, much of that of Wheat has already been sold at very reduced prices, insomuch that so great sales of this crop, so early in autumn, have not been made in the memory of man. The whole of the produce was stacked in very superior condition. The best Wheat is about 7s.—Rye 5s.—Barley 4s.—Beans 5s.—and Oats 3s. 6d. per bushel of Winchester.

The season throughout the summer has been fine beyond common experience. The Fallows have been tolerably well made; but, from want of rain, the early sown Turnips are not so productive of feed as usual. The latter sown crops appear more promising, as they are now growing very fast. The Pasture and Meadow Grass too, having failed from the same cause, the price of Lean Sheep and Cattle have declined in proportion; yet they are not ill sold in general. Cows and Calves, Cows in Calf and Heifers are very well sold at most of the markets. A considerable reduction has taken place in the price of Fat Cattle and Sheep. The best Beef, Mutton, Veal and Pork are about 7d. per lib. Butter has been dear all summer, and is now about 1s. 6d. per lib. avoirdupois. Long Wool was, and remains at the highest rate almost ever known before.

A considerable quantity of land is sown with Wheat. The young seeds are uncommonly fine among the stubbles of Wheat, Barley, Oats, &c. Though the last crop of Hay and Clover was good, the price appears rising.—Hay is now about 6*l.* 10s. per ton.

Potatoes are not very productive this season, but are selling very cheap. Pigs are low, occasioned by an inroad of such multitudes from Ireland, which, though gaunt as famished greyhounds, are sold for some price; and yet sometimes nearly given away.—*Oct.* 22.

Letter from Wales, October 24th.

SINCE I wrote you last, we have had a continuance of fine favourable weather: the harvest was all got in to our satisfaction. I do not, in my time, recollect a more general good crop of Corn than we have this year. The Turnip has failed in many instances; and Potatoes are not a great crop, owing to the dry summer; but they are good in quality. The Wheat sowing is far advanced, the weather having continued good till the beginning of last week, when the rains set in, and have continued ever since; so that the ground is at present very wet, and but little can be done. I hear most farmers allow, that the Corn proves good in the barn; and I believe there has been a greater quantity thrashed this year than usual, owing to the very low price; for money must be had if possible, and a very great deal must be sold to make up a small payment. The advance on labour and taxes within the last twenty years, is, in this part, fully equal to the old rents; and if our Corn and Cattle are to be sold at the then prices, how is the rent to be made up? What do they say now who were so much alarmed at the Corn Bill; I believe it would be better for them (particularly in country towns) to pay a penny more for their loaf of bread, than to stand looking at their fingers in their shops, or making entries on their books for what goods they sell on credit. The present price of Wheat is from 18s. to 21s. for 168 pounds, or 21 gallons; Barley from 8s. to 8s. 6d. for 21 gallons; Oats 16s. to 18s. the quarter; Seed Tares from 5s. to 7s. the Winchester bushel; Horses about half their former price, and only the best can be sold; Lean Cattle nearly the same as Horses; and a great decline in Fat. Our markets begin to be overstocked with Butcher's Meat. Beef and Mutton is from 5d. to 7d. per lib. The butcher must have a great profit on Beef; Sheep hold their price better than Cattle; Pigs are cheap. The dairy farmers are the only men who can pay their way at present; Butter and Cheese still sell well, though Cheese is lower than it has been? Labour is very little lower; but when the Wheat sowing is over, it is supposed there will be many out of employ; and if so, the poors' rates will advance. I do not see that they are at all reduced at present.

Wiltshire Quarterly Report.

PERHAPS there has not been a season for these last twenty years when we have been favoured with such suitable weather for so great a length of time; from the commencement of Haymaking (both field and meadow grass), all through the Wheat, Barley, and Bean harvest to the present advanced period of Wheat sowing, it has been one series of fine weather, with occasional fruitful showers. We experienced some little inconvenience as it regards our Turnips; owing to the want of rain, many were obliged to sow three times, and of course were late; but, though many of the Turnips (principally the Ruta baga, of course) were not sown till July, they make a very

promising appearance. The Reporter has five acres, which were not sown till after the middle of August, which nevertheless *cut a very good figure*; and he doubts not but they will produce a luxuriant crop late in the spring. As a dry summer always suits us, while many have been crying out for rain, we have improved the advantage the season has afforded us; and our wheat land, generally speaking, was never in a much better condition. The harvest abundant;—the sale of every thing intolerably low;—never so great a want of money;—never so great a deficiency. Our Sheep are scarcely worth driving to fair; and, when there, nobody asks the price of them. The Reporter, when at Weyhill, heard a very respectable young man say, with a great deal of *pathos, aye and feeling too*, 'I wish my father had *apprenticed me to a shoe-black* rather than have made a farmer of me!'

As I have nothing more to *report* worth reporting, and the less we think about the badness of the times the better, for you know, to use a homely phrase, '*Every lane has a turn*,'—I will say no more about farming, for it is not worth talking about; but merely express a wish that the internal wealth of the country may be rightly appreciated; that the universal maxim of '*Live and let live*' may be rightly understood; that foreign countries may have spirit enough to refuse the subsidies we so generously offered in the time of exigency—as a matter of course, that taxes may be lowered, and, *I was almost going to say*, the tything system abolished.——*27th October.*

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